QM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
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Run on: May 20, 2003, 15:34:55 ; Search time 39.1979 Seconds
                (without alignments)
                174.130 Million cell updates/sec

Title: US-09-910-082A-190
Perfect score: 378
Sequence: 1 MKLICVVIAVLLTACQLI..........PCSRIAYNCCTGSCRSGKCG 71

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

earched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

Database :   PIR_73:*
           1: pir1:*
           2: pir2:*
           3: pir3:*
           4: pir4:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	259.5	68.7	73	1	NTKN6G	omega-conotoxin GV
2	163.5	43.3	74	2	B59135	probable omega-con
3	135.5	35.8	78	2	S12513	delta-conotoxin Tx
4	135	35.7	77	2	S12514	conotoxin Tx-KK1 p
5	128	33.9	77	2	S12515	conotoxin Tx-KK2 p
6	126	33.3	81	1	A58651	delta-conotoxin PV
7	121	32.0	25	2	JH0700	omega-conotoxin MV
8	114.5	30.3	29	2	JH0699	omega-conotoxin MV
9	114	30.2	29	2	A58537	omega-conotoxin MV
10	105	27.8	25	2	JH0701	omega-conotoxin MV
11	98.5	26.1	80	2	A59135	probable delta-con
12	89.5	23.7	26	2	C44379	omega-conotoxin SV
13	72.5	19.2	775	2	T21436	hypothetical prote
14	67.5	17.9	29	2	A43620	omega-conotoxin GV
15	67.5	17.9	29	2	B43620	omega-conotoxin GV
16	66	17.5	2664	2	T28626	variant-specific s
17	64.5	17.1	111	2	S44787	D2007.1 protein
18	64	16.9	397	2	JQ2153	proteinase inhibit
19	63.5	16.8	51	1	JQ2153	colicin A lysis pr
20	63	16.7	130	2	S07307	mating pheromone E
21	63	16.7	4753	1	A47437	LDL-receptor-relat
22	62.5	16.5	226	2	JQ2067	surface antigen -
23	62.5	16.5	366	2	T25042	hypothetical prote
24	61.5	16.3	52	2	T10299	conotoxin-like pro
25	61.5	16.3	174	2	B96543	hypothetical prote
26	61.5	16.3	909	2	QRXLL1	LDL receptor 1 pre
27	61.5	16.3	940	2	H71409	hypothetical prote
28	61	16.1	107	1	A60361	neuroparsin A prec
29	61	16.1	217	2	AI0987	probable lipoprote
30	61	16.1	325	2	S68985	exogastrula-induci
31	61	16.1	477	2	T05202	pectinesterase hom
32	61	16.1	1239	2	T13809	probable disinteg
33	61	16.1	1650	2	T42737	dominant autoantig
34	61	16.1	4650	2	T42737	gp330 protein prec
35	60.5	16.0	139	2	S54085	probable membrane
36	60	15.9	24	2	B44379	omega-conotoxin SV
37	60	15.9	27	2	S19619	delta-conotoxin Tx
38	60	15.9	176	2	T17935	hypothetical prote
39	60	15.9	972	2	A30363	glycoprotein GP330
40	60	15.9	1290	2	T00018	period protein hom
41	60	15.9	1291	2	T00019	period protein hom
42	60	15.9	1369	2	S70713	protein-tyrosine k
43	59.5	15.9	650	2	H81708	hypothetical prote
44	59.5	15.7	2150	2	T32497	hypothetical prote
45	59	15.6	106	2	T27989	hypothetical prote

ALIGNMENTS

RESULT 1
NTKN6G
omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)
N;Alternate names: shaker peptide GVIB
N;Contains: omega-conotoxin GVIA; omega-conotoxin GVIB
C;Species: Conus geographus (geography cone)
C;Date: 25-Feb-1985 #sequence_revision 23-Mar-1995 #text_change 15-Sep-2000
C;Accession: A44006; A60133; B60133; A01785
R;Colledge, C.J.; Hunsperger, J.P.; Imperial, J.S.; Hillyard, D.R.
A;Molecule type: mRNA
A;Residues: 1-73 <COL>
A;Cross-references: GB:M84612; NID:g156520; PIDN:AAA81590.1; PID:g1070393
A;Experimental source: venom duct
A;Note: sequence extracted from NCBI backbone (NCBIN:119531, NCBIP:119532)
R;Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Sa
Science 230, 1338-1343, 1985
A;Title: Peptide neurotoxins from fish-hunting cone snails.
A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Accession: A60133
A;Molecule type: protein
A;Residues: 46-73 <OLI>
A;Accession: B60133
A;Molecule type: protein
A;Residues: 46-71 <OL2>
R;Olivera, B.M.; McIntosh, J.M.; Cruz, L.J.; Luque, F.A.; Gray, W.R.
Biochemistry 23, 5087-5090, 1984
A;Title: Purification and sequence of a presynaptic peptide toxin from Conus geograph
A;Reference number: A01785; MUID:85072796; PMID:6509012
A;Accession: A01785
A;Molecule type: protein
A;Residues: 46-72 <OL3>
R;Nishiuchi, Y.; Kumagaye, K.; Noda, Y.; Watanabe, T.X.; Sakakibara, S.
Biopolymers 25, S61-S68, 1986
A;Title: Synthesis and secondary-structure determination of omega-conotoxin GVIA: a 2
A;Reference number: A49017; MUID:87049928; PMID:3779030
A;Contents: annotation
A;Note: disulfide bonds determined and confirmed by chemical synthesis
R;Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus,
submitted to the Brookhaven Protein Data Bank, April 1993
A;Reference number: A51894; PDB:1OMC
A;Contents: annotation; conformation by (1)H-NMR, residues 46-72
R;Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus,
Biochemistry 32, 7396-7405, 1993
A;Title: Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy and re
A;Reference number: A58536; MUID:93332945; PMID:8338837
A;Contents: annotation; conformation by (1)H-NMR
R;Pallaghy, P.K.; Duggan, B.M.; Pennington, M.W.; Norton, R.S.
submitted to the Brookhaven Protein Data Bank, August 1993

A;Reference number: A51089; PDB:1CCO
A;Contents: annotation; conformation by (1)H-NMR, residues 46-72
C;Comment: There are several types of conotoxins: alpha, acting on postsynaptic membrane neurotoxin.
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-45/Domain: propeptide #status predicted <PRO>
F;46-72/Product: omega-conotoxin GVIB #status experimental <MAT1>
F;46-73/Product: omega-conotoxin GVIA #status experimental <MAT2>
F;46-72/Product: omega-conotoxin GVIC #status experimental <MAT3>
F;46-71/Product: omega-conotoxin GVIC #status experimental <MAT3>
F;46-61,53-64,60-71/Disulfide bonds: #status experimental
F;49,55,66/Modified site: 4-hydroxyproline (pro) #status experimental
F;72/Modified site: amidated carboxyl end (Tyr) (amide in mature form from following gly

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
           |||||||||||||||||||||||||| || ||| ||:|:|||||| | | :|||
Db   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALGSTTELSLSTRCKSPGSSCSPTSYNC 60

Qy   61 CTGSC 65
           | ||
Db   61 CR-SC 64

RESULT 2
B59135
probable omega-conotoxin PuIIA precursor - cone shell (Conus pulicarius)
C;Species: Conus pulicarius
C;Date: 05-Nov-1999 #sequence_revision 05-Nov-1999 #text_change 05-Nov-1999
C;Accession: B59135
R;Zhao, D.; Yao, J.; Dai, Q.; Huang, P.
submitted to GenBank, March 1999
A;Reference number: A59135
A;Accession: B59135
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-74 <ZHA>
A;Cross-references: GB:AF132130; NID:g4928439; PIDN:AAD33586.1; PID:g4928440
A;Gene: PuIIA
C;Superfamily: omega-conotoxin
C;Keywords: calcium channel inhibitor; presynaptic neurotoxin; venom
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-45/Domain: propeptide #status predicted <PRO>
F;46-74/Product: omega-conotoxin PuIIA #status predicted <MAT>
F;48-62,55-66,61-73/Disulfide bonds: #status predicted

Query Match   68.7%;   Score 259.5; DB 1; Length 73;
Best Local Similarity   80.0%;   Pred. No. 5.2e-20;
Matches   52; Conservative   3; Mismatches   9; Indels   1; Gaps   1;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
           |||||||||||||||||||||||||||||||||||||||| || :|||||| | :|||
Db   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALGSTTELSLSTRCKSPGSSCSPTSYNC 60

Qy   61 CTGSC 65
           | ||
Db   61 CCSLYC 66

RESULT 3
S12513
delta-conotoxin TxVIA precursor - cone shell (Conus textile)
N;Alternate names: conotoxin IA; King-Kong peptide (KK-0)
C;Species: Conus textile (cloth-of-gold cone)
C;Date: 19-Mar-1997 #sequence_revision 11-Apr-1997 #text_change 16-Jul-1999
C;Accession: S12513; A30103; S19553
R;Woodward, S.R.; Cruz, L.J.; Olivera, B.M.; Hillyard, D.R.
EMBO J. 9, 1015-1020, 1990

Qy   1 MKLTCVVIVAVLLLTACQLITADD-SRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYN 59
           |||||||||||||||| ||||||| || |||||| || :||| || :| | |:|
Db   1 MKLTCMMIVAVLFLTAEFYSRGEQKHRALSSDKNSKLTRTCNTPIQYCTLHRH 60

Qy   60 CCTGSC 65
           ||:|
Db   61 CCSLYC 66

A;Title: Constant and hypervariable regions in conotoxin propeptides.
A;Reference number: S12513; MUID:90214607; PMID:1691090
A;Accession: S12513
A;Molecule type: mRNA
A;Residues: 1-78 <WOO>
A;Cross-references: EMBL:X53283; NID:g10887; PIDN:CAA37377.1; PID:g10888
R;Hillyard, D.R.; Olivera, B.M.; Woodward, S.; Corpuz, G.P.; Gray, W.R.; Ramilo, C.A.
Biochemistry 28, 358-361, 1989
A;Title: A molluscivorous Conus toxin: conserved frameworks in conotoxins.
A;Reference number: A30103; MUID:89207553; PMID:2706261
A;Accession: A30103
A;Molecule type: protein
A;Residues: 52-78 <HIL>
R;Fainzilber, M.; Gordon, D.; Hasson, A.; Spira, M.E.; Zlotkin, E.
Eur. J. Biochem. 202, 589-595, 1991
A;Title: Mollusc-specific toxins from the venom of Conus textile neovicarius.
A;Reference number: S19553; MUID:92104183; PMID:1761058
A;Accession: S19553
A;Molecule type: protein
A;Residues: 52-78 <FAI>
C;Superfamily: omega-conotoxin
C;Keywords: neurotoxin; sodium channel inhibitor; venom
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-51/Domain: propeptide #status predicted <PRO>
F;52-78/Product: delta-conotoxin TxVIA #status experimental <MAT>
F;53-68,60-72,67-77/Disulfide bonds: #status predicted

Query Match   35.8%;   Score 135.5; DB 2; Length 78;
Best Local Similarity   40.3%;   Pred. No. 3.4e-07;
Matches   29; Conservative   12; Mismatches   24; Indels   7; Gaps   2;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRG-----TQKHRALRSDTKLSMSTPR-CKGTGKPC 53
           |||||::|||||| ||||||||||| | | :|| ::| :: ||
Db   1 MKLTCMMIVAVLFLTAWTFATADDPPRNGLGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC 60

Qy   54 SRIAYNCCTGSC 65
           : |||| |
Db   61 NILDQNCCDGYC 72

RESULT 4
S12514
conotoxin Tx-KK1 precursor - cone shell (Conus textile)
N;Alternate names: King-Kong peptide
C;Species: Conus textile (cloth-of-gold cone)
C;Date: 19-Mar-1997 #sequence_revision 11-Apr-1997 #text_change 16-Jul-1999
C;Accession: S12514
R;Woodward, S.R.; Cruz, L.J.; Olivera, B.M.; Hillyard, D.R.
EMBO J. 9, 1015-1020, 1990
A;Title: Constant and hypervariable regions in conotoxin propeptides.
A;Reference number: S12513; MUID:90214607; PMID:1691090
A;Accession: S12514
A;Molecule type: mRNA
A;Residues: 1-77 <WOO>
A;Cross-references: EMBL:X53284; NID:g10889; PIDN:CAA37378.1; PID:g10890
C;Superfamily: omega-conotoxin
C;Keywords: neurotoxin; venom
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-51/Domain: propeptide #status predicted <PRO>
F;52-77/Product: conotoxin Tx-KK1 #status predicted <MAT>
F;52-67,59-71,66-76/Disulfide bonds: #status predicted

Query Match   35.7%;   Score 135; DB 2; Length 77;
Best Local Similarity   39.4%;   Pred. No. 3.8e-07;
Matches   28; Conservative   10; Mismatches   27; Indels   6; Gaps   1;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRG----------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
           |||||::|||||| |||| ||||| :||||:|:|||||| | | |
Db   1 MKLTCMMIVAVLFLTAWTFATADDSSNGLENLFSKAHHEMKNPEASKLNKRCIEQFDCE 60

Qy   55 RIAYNCCTGSC 65
           | || | |
Db   61 MIRHTCCVGVC 71

RESULT 5
S12515
conotoxin Tx-KK2 precursor - cone shell (Conus textile)
N;Alternate names: King-Kong peptide (KK-2)
C;Species: Conus textile (cloth-of-gold cone)
C;Date: 19-Mar-1997 #sequence_revision 11-Apr-1997 #text_change 16-Jul-1999
C;Accession: S12515
R;Woodward, S.R.; Cruz, L.J.; Olivera, B.M.; Hillyard, D.R.
EMBO J. 9, 1015-1020, 1990
A;Title: Constant and hypervariable regions in conotoxin propeptides.
A;Reference number: S12515; MUID:90214607; PMID:1691090
A;Molecule type: mRNA
A;Accession: S12515
A;Residues: 1-77 <WOO>
A;Cross-references: EMBL:X53285; NID:g10891; PIDN:CAA37379.1; PID:g10892
A;Superfamily: omega-conotoxin
A;Keywords: neurotoxin; venom
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-51/Domain: propeptide #status predicted <PRO>
F;52-77/Product: conotoxin Tx-KK2 #status predicted <MAT>
F;52-67,59-71,66-76/Disulfide bonds: #status predicted

```
Query Match          33.9%;  Score 128;  DB 2;  Length 77;
Best Local Similarity 38.0%;  Pred. No. 2e-06;
Matches   27;  Conservative 12;  Mismatches 26;  Indels 6;  Gaps 1;

Qy  1 MKLTCVVIVAVLLLTACQLITPADDSRG------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
       |||||:|||||:||||||      ||||||     |   ||:|| || : ||
Db  1 MKLTCMMIVAVLFLTAWTFVTADDSGNGLENLFSKAHHEMKNPEASNLNKRCAPFLHPCT 60

Qy 55 RIAYNCCTGSC 65
        |        |
Db 61 FFFPNCCNSYC 71
```

RESULT 6
A58651
delta-conotoxin PVIA precursor - cone shell (Conus purpurascens)
N;Alternate names: lockjaw peptide
C;Species: Conus purpurascens (purple cone)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999
C;Accession: A58651
R;Shon, K.J.; Grilley, M.M.; Marsh, M.; Yoshikami, D.; Hall, A.R.; Kurz, B.; Gray, W.R.;
Biochemistry 34, 4913-4918, 1995
A;Title: Purification, characterization, synthesis, and cloning of the lockjaw peptide t
A;Reference number: A58651; MUID:95226378; PMID:7711013
A;Accession: A58651
A;Molecule type: mRNA; protein
A;Residues: 1-81 <SHO>
A;Superfamily: omega-conotoxin
C;Keywords: amidated carboxyl end; hydroxyproline; neurotoxin; sodium channel inhibitor;
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-51/Domain: propeptide #status predicted <PRO>
F;52-80/Product: delta-conotoxin PVIA #status experimental <MAT>
F;54-69,61-73,68-78/Disulfide bonds: #status predicted
F;57,65/Modified site: 4-hydroxyproline (Pro) #status predicted
F;80/Modified site: amidated carboxyl end (Gly) (amide in mature form from following gly

```
Query Match          41.0%;  Score 126;  DB 1;  Length 81;
Best Local Similarity 33.3%;  Pred. No. 3.4e-06;
Matches   32;  Conservative 6;  Mismatches 32;  Indels 8;  Gaps 2;

Qy  1 MKLTCVVIVAVLLLTACQLITADDSR-GTQKH------RALRSDTKLSMSTRCKGTGKP 52
       ||||||:|||||||||        |  |   ||      ||:|| ||| : : || : ||
Db  1 MKLTCVMIVAVLFLTAWTFVTADDSKNGLENHFWKARDEMKNREASKLDKKEACYAPGTF 60

Qy 53 CSRIAYNCCTGSGCRSRGKC 70
        | | |    |  |    | |
Db 61 CGIKPGLCCSEPCLPGVC 78
```

RESULT 7
JH0700
omega-conotoxin MVIIA [validated] - cone shell (Conus magus)
C;Species: Conus magus (magus cone)
C;Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 15-Sep-2000
C;Accession: JH0700; C60133; A34115
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.
Neuron 9, 69-77, 1992
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.
A;Reference number: JH0700; MUID:92337922; PMID:1352986
A;Accession: JH0700
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Residues: 1-25 <HIL>
R;Olivera, B.M.; Gray, W.R.; Zelkus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Sa
Science 230, 1338-1343, 1985
A;Title: Peptide neurotoxins from fish-hunting cone snails.
A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Accession: C60133
A;Molecule type: protein
A;Residues: 1-25 <OLI>
R;Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zelkus, R;
Biochemistry 26, 2086-2090, 1987
A;Title: Neuronal calcium channel antagonists. Discrimination between calcium channel
A;Reference number: A34115; MUID:87299637; PMID:2441741
A;Accession: A34115
A;Contents: annotation
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
submitted to the Brookhaven Protein Data Bank, August 1996
A;Reference number: A67648; PDB:1MVI
A;Contents: annotation; conformation by (1)H-NMR, residues 1-25
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
J. Mol. Biol. 263, 297-310, 1996
A;Title: A consensus structure for omega-conotoxins with different selectivities for
A;Reference number: A58619; MUID:97070382; PMID:8913308
A;Contents: annotation; conformation by (1)H-NMR
R;Kohno, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.
submitted to the Brookhaven Protein Data Bank, April 1995
A;Reference number: A66296; PDB:1OMG
A;Contents: annotation; conformation by (1)H-NMR
R;Kohno, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.
Biochemistry 34, 10256-10265, 1995
A;Title: Three-dimensional structure in solution of the calcium channel blocker omega
A;Reference number: A58627; MUID:95367555; PMID:7640281
A;Contents: annotation; conformation by (1)H-NMR
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel
F;1-16,8-20,15-25/Disulfide bonds: #status predicted
F;25/Modified site: amidated carboxyl end (Cys) #status experimental

```
Query Match          32.0%;  Score 121;  DB 2;  Length 25;
Best Local Similarity 76.0%;  Pred. No. 4.9e-06;
Matches   19;  Conservative 2;  Mismatches 4;  Indels 0;  Gaps 0;

Qy 46 CKGTGKPCSRIAYNCCTGSGCRSRGKC 70
        ||  | ||||||||||||||||||
Db  1 CKGKGAKCSRLMYDCCTGSCRSRGKC 25
```

RESULT 8
JH0699
omega-conotoxin MVIIC precursor [validated] - cone shell (Conus magus) (fragment)
C;Species: Conus magus (magus cone)
C;Date: 17-Apr-1993 #sequence_revision 11-Apr-1997 #text_change 15-Sep-2000
C;Accession: JH0699; PC2380
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.
Neuron 9, 69-77, 1992
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.
A;Reference number: JH0699; MUID:92337922; PMID:1352986
A;Accession: JH0699
A;Molecule type: mRNA
A;Residues: 1-29 <HIL>
A;Cross-references: GB:S40826; NID:g9252126; PIDN:AAB22674.1; PID:g9252127
R;Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Kimura, T.; Sakakibara, S.; Kyogoku,

Biochem. Biophys. Res. Commun. 207, 695-700, 1995
A;Title: Solution structure of omega-conotoxin MVIIC determined by NMR.
A;Reference number: PC2380; MUID:95169113; PMID:7864862
A;Accession: PC2380
A;Molecule type: protein
A;Residues: 3-28 <NEW>
R;Farr-Jones, S.; Basus, V.J.
R;Farr-Jones, S.; Basus, V.J.
submitted to the Brookhaven Protein Data Bank, December 1994
A;Reference number: A66297; PDB:1OMN
A;Contents: annotation; conformation by (1)H-NMR, residues 3-28.
A;Contents: annotation; conformation by (1)H-NMR
R;Farr-Jones, S.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.
J. Mol. Biol. 248, 106-124, 1995
A;Title: Solution structure of omega-conotoxin MVIIC, a high affinity of P-type calcium
A;Reference number: A58582; MUID:95248539; PMID:7731037
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh
F;3-28/Product: omega-conotoxin MVIIC #status experimental <MAT>
F;3-18,10-22,17-28/Disulfide bonds: #status experimental
F;28/Modified site: amidated carboxyl end (Cys) (amide in mature form from following gly

```
Query Match       30.3%;  Score 114.5;  DB 2;  Length 29;
Best Local Similarity  65.5%;  Pred. No. 2.6e-05;
Matches   19;  Conservative   3;  Mismatches   6;  Indels   1;  Gaps   1;

Qy  44 TRCKGTGKPCSRIAYNCCTGSC-RSGKCG 71
        ||||| || | :|||:||| | :|||:|||
Db   1 TRCKGKGAPCRKIMYDCCSGSCGRRGKCG 29
```

RESULT 9
A58537
omega-conotoxin MVIID precursor - cone shell (Conus magus) (fragment)
C;Species: Conus magus (magus cone)
C;Date: 27-Mar-1997 #sequence_revision 11-Apr-1997 #text_change 16-Jul-1999
A;Accession: A58537
R;Monje, V.D.; Haack, J.A.; Naisbitt, S.R.; Miljanich, G.; Ramachandran, J.; Nasdasdi, L
Neuropharmacology 32, 1141-1149, 1993
A;Title: A new Conus peptide ligand for Ca channel subtypes.
A;Reference number: A58537; MUID:94150815; PMID:8107968
A;Accession: A58537
A;Molecule type: mRNA
A;Residues: 1-29 <MON>
A;Cross-references: GB:S69322; NID:g545399; PIDN:AAB29902.1; PID:g545400
A;Note: the predicted peptide was chemically synthesized and alternative disulfide bonds
C;Superfamily: omega-conotoxin
C;Keywords: toxin; venom
F;4-29/Product: omega-conotoxin MVIID #status predicted <MAT>
F;4-19,11-23,18-28/Disulfide bonds: #status predicted

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Query Match       58.6%;  Score 114;  DB 2;  Length 29;
Best Local Similarity  58.6%;  Pred. No. 2.9e-05;
Matches   17;  Conservative   4;  Mismatches   8;  Indels   0;  Gaps   0;

Qy  43 STRCKGTGKPCSRIAYNCCTGSCRSGKCG 71
        |||| | ||||||||||||||| |||:|||
Db   1 STRCQGRGASCRKTMYNCCSGSCNRGRCG 29
```

RESULT 10
JH0701
omega-conotoxin MVIIB - cone shell (Conus magus)
C;Species: Conus magus (magus cone)
C;Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 23-May-1997
A;Accession: JH0701; B34115
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M
Neuron 9, 69-77, 1992
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.
A;Reference number: JH0699; MUID:9237922; PMID:1352986
A;Accession: JH0701
A;Molecule type: mRNA
A;Status: nucleic acid sequence not shown
A;Residues: 1-25 <HIL>

R;Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zelkus, R
Biochemistry 26, 2086-2090, 1987
A;Title: Neuronal calcium channel antagonists. Discrimination between calcium channel
A;Reference number: A34115; MUID:87299637; PMID:2441741
A;Accession: B34115
A;Molecule type: protein
A;Residues: 1-25 <OLI>
C;Superfamily: omega-conotoxin
C;Keywords: omega-conotoxin; amidated carboxyl end; calcium channel
F;1-16,8-20,15-25/Disulfide bonds: #status predicted
F;25/Modified site: amidated carboxyl end (Cys) #status predicted

```
Query Match       27.8%;  Score 105;  DB 2;  Length 25;
Best Local Similarity  64.0%;  Pred. No. 0.00022;
Matches   16;  Conservative   2;  Mismatches   7;  Indels   0;  Gaps   0;

Qy  46 CKGTGKPCSRIAYNCCTGSGSCRSGKC 70
        ||| | | | :|||||||| ||
Db   1 CKGKGASCHRTSYDCCTGSCNRGKC 25
```

RESULT 11
A59135
probable delta-conotoxin PuIA precursor - cone shell (Conus pulicarius)
C;Species: Conus pulicarius
C;Date: 05-Nov-1999 #sequence_revision 05-Nov-1999 #text_change 05-Nov-1999
A;Accession: A59135
A;Gene: PuIA
C;Superfamily: omega-conotoxin
C;Genetics:
A;Cross-references: GB:AF132129; NID:g4928437; PIDN:AAD35585.1; PID:g4928438
A;Molecule type: mRNA
A;Residues: 1-80 <ZHA>
R;Zhao, D.; Yao, J.; Dai, Q.; Huang, P.
R;Zhao, D.; Yao, J.; Dai, Q.; Huang, P.
submitted to GenBank, March 1999
A;Reference number: A59135
A;Status: not compared with conceptual translation
F;23-50/Domain: propeptide #status predicted <PRO>
F;1-22/Domain: signal sequence #status predicted <SIG>
F;51-80/Product: delta-conotoxin PuIA #status predicted <MAT>
F;52-70,59-74,69-78/Disulfide bonds: #status predicted

```
Query Match       26.1%;  Score 98.5;  DB 2;  Length 80;
Best Local Similarity  37.3%;  Pred. No. 0.0023;
Matches   28;  Conservative   7;  Mismatches   29;  Indels   11;  Gaps   3;

Qy   1 MKLTCVVIVAVLLLTACQLITRADDSRGTQKHRALRSDTKLSMSTR------CKGTGKPCS 54
        |||||| :|||| ||| :  ||                             :  | |  |
Db   1 MKLTCVMIVAVLFLTAWTFVTADSIRALEDLFAKAPDEMENSGASPLNERDCRPVGQYCG 60

Qy  55 RIAY-----NCCTGSC 65
        | |      |||   |
Db  61 -IPYEHNWRCCSGLC 74
```

RESULT 12
C44379
omega-conotoxin SVIB [validated] - cone shell (Conus striatus)
N;Alternate names: SNX-183
C;Species: Conus striatus (striated cone)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 15-Sep-2000
A;Accession: C44379
R;Ramilo, C.A.; Zafaralla, G.C.; Nadasdi, L.; Hammerland, L.G.; Yoshikami, D.; Gray,
Biochemistry 31, 9919-9926, 1992
A;Title: Novel alpha- and omega-conotoxins from Conus striatus venom.
A;Reference number: A44379; MUID:93003172; PMID:1390774
A;Accession: C44379
A;Molecule type: protein
A;Residues: 1-26 <RAM>
A;Cross-references: CAS:143306-19-8
A;Experimental source: venom

A;Note: sequence extracted from NCBI backbone (NCBIP;116002); structure confirmed by che
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
A;Accession: A77649; PDB:1MVJ
A;Molecule type: protein
A;Reference number: A77649; PDB:1MVJ
A;Residues: 1-26 <OLI>
C;Superfamily: omega-conotoxin
C;Contents: annotation; conformation by (1)H-NMR, residues 1-26
C;Date: 15-Oct-1999
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
J. Mol. Biol. 263, 297-310, 1996
A;Title: A consensus structure for omega-conotoxins with different selectivities for vol
A;Reference number: A58619; MUID:97070382; PMID:8913308
A;Comment: This omega-conotoxin blocks presynaptic calcium channels.
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh
F;1-16,8-20,15-26/Disulfide bonds: #status predicted
F;26/Modified site: amidated carboxyl end (Cys) #status experimental

Qy   46 CKGTGKPCSRIAYNCCTGSC-RSGKC 70
         || ||||| |||||||||| ||||
Db   1 CKLKGQSCRKTSYDCCSGSCGRSGKC 26

Query Match   23.7%;   Score 89.5; DB 2; Length 26;
Best Local Similarity   57.7%;   Pred. No. 0.009;
Matches   15;   Conservative   5;   Mismatches   5;   Indels   1;   Gaps   1;

RESULT 13
T21436
hypothetical protein R06A4.7 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-775 <WIL>
R;Barlow, K.
submitted to the EMBL Data Library, November 1996
A;Reference number: Z19421
A;Accession: T21436
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-775 <WIL>
A;Cross-references: EMBL:Z81515; PIDN:CAB04199.1; GSPDB:GN00020; CESP:R06A4.7
A;Experimental source: clone F26H11
R;Barlow, K.
submitted to the EMBL Data Library, November 1996
A;Reference number: Z19822
A;Accession: T23953
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-775 <WI2>
A;Cross-references: EMBL:Z83120; PIDN:CAB05589.1; GSPDB:GN00020; CESP:R06A4.7
A;Experimental source: clone R06A4
C;Genetics:
A;Gene: CESP:R06A4.7
A;Map position: 2
A;Introns: 223/1; 414/3; 464/2; 537/1; 601/2; 655/1; 679/1; 749/2

Query Match   19.2%;   Score 72.5; DB 2; Length 775;
Best Local Similarity   36.2%;   Pred. No. 5.4;
Matches   21;   Conservative   10;   Mismatches   22;   Indels   5;   Gaps   3;

Qy   14 LTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSCR-SGKC 70
         || ||| || ||::|:|:: || |: |:|||||||||||||||||| :||
Db   501 LDAEKLIREDDMRDSQRNSEKVRMTAVTPITACRHAG-PCNATAENC---ACRENGVC 554

RESULT 14
A43620
omega-conotoxin GVIIA - cone shell (Conus geographus)
N;Alternate names: shaker peptide GVIIA
N;Alternate names: shaker peptide GVIIA
C;Species: Conus geographus (geography cone)
C;Date: 11-Dec-1992 #sequence_revision 11-Dec-1992 #text_change 23-May-1997
C;Accession: A43620
R;Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santo
Science 230, 1338-1343, 1985
A;Title: Peptide neurotoxins from fish-hunting cone snails.

A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Accession: A43620; MUID:86070213; PMID:4071055
A;Molecule type: protein
A;Residues: 1-29 <OLI>
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyprol1
F;1-16,8-19,15-26/Disulfide bonds: #status predicted
F;4,7/Modified site: 4-hydroxyproline (Pro) #status experimental

Qy   46 CKGTGKPCSRIAYNCCTGSC--RSGKC 70
         || ||||| |||||| || ||
Db   1 CKSPGTPCSRGMRDCCT-SCLLYSNKC 26

Query Match   17.9%;   Score 67.5; DB 2; Length 29;
Best Local Similarity   55.6%;   Pred. No. 1.8;
Matches   15;   Conservative   1;   Mismatches   8;   Indels   3;   Gaps   2;

RESULT 15
B43620
omega-conotoxin GVIIB - cone shell (Conus geographus)
N;Alternate names: shaker peptide GVIIB
C;Species: Conus geographus (geography cone)
C;Date: 11-Dec-1992 #sequence_revision 11-Dec-1992 #text_change 23-May-1997
A;Title: Peptide neurotoxins from fish-hunting cone snails.
A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Accession: B43620
A;Molecule type: protein
A;Residues: 1-29 <OLI>
R;Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Sa
Science 230, 1338-1343, 1985
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyprol1
F;1-16,8-19,15-26/Disulfide bonds: #status predicted
F;4,7/Modified site: 4-hydroxyproline (Pro) #status experimental

Qy   46 CKGTGKPCSRIAYNCCTGSC--RSGKC 70
         || ||||| |||||| || ||
Db   1 CKSPGTPCSRGMRDCCT-SCLSYSNKC 26

Query Match   17.9%;   Score 67.5; DB 2; Length 29;
Best Local Similarity   55.6%;   Pred. No. 1.8;
Matches   15;   Conservative   1;   Mismatches   8;   Indels   3;   Gaps   2;

Search completed: May 20, 2003, 15:41:52
Job time : 40.1979 secs

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OM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
Copyright (c) 1993 - 2003 Compugen Ltd.

Run on: May 20, 2003, 15:32:50 ; Search time 76.9167 seconds
                    (without alignments).
                    190.197 Million cell updates/sec

Title: US-09-910-082A-190
Perfect score: 378
Sequence: 1 MKLTCVVIVAVLLTACQLI.........PCSRIAYNCCTGSCRSGKCG 71

Scoring table: BLOSUM62
                    Gapop 10.0 , Gapext 0.5

earched: 671580 seqs, 20604711S residues

Post-processing: Minimum Match 0%
                    Maximum Match 100%
                    Listing first 45 summaries

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Database :   SPTREMBL_21:*
  1: sp_archea:*
  2: sp_bacteria:*
  3: sp_fungi:*
  4: sp_human:*
  5: sp_invertebrate:*
  6: sp_mammal:*
  7: sp_mhc:*
  8: sp_organelle:*
  9: sp_phage:*
 10: sp_plant:*
 11: sp_rodent:*
 12: sp_virus:*
 13: sp_vertebrate:*
 14: sp_unclassified:*
 15: sp_rvirus:*
 16: sp_bacterial:*
 17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	339	89.7	66	5	Q9NCV1	conus stria
2	331	87.6	66	5	Q9N6N6	conus catus
3	328	86.8	66	5	Q9N6F7	conus catus
4	327	86.5	66	5	Q9NCV4	conus stria
5	324	85.7	66	5	Q9NCV3	conus stria
6	323	85.4	66	5	Q9NCV2	conus stria
7	312	82.5	66	5	Q9NCV0	conus stria
8	309	81.7	66	5	Q9NCU1	conus stria
9	309	81.7	66	5	Q9N628	conus catus
10	304	80.4	66	5	Q9NCW3	conus catus
11	304	80.4	66	5	Q9N633	conus catus
12	303	80.2	66	5	Q9N625	conus catus
13	302	79.9	66	5	Q9NCW1	conus catus
14	300	79.4	66	5	Q9NCV5	conus catus
15	299	79.1	66	5	Q9NCW6	conus catus
16	299	79.1	66	5	Q9NCW2	conus catus

17	298	78.8	66	5	Q9NCW5	conus catus
18	297	78.6	66	5	Q9NCV7	conus catus
19	296	78.3	66	5	Q9N6F7	conus catus
20	292	77.2	66	5	Q9NCV6	conus catus
21	291	77.0	66	5	Q9NCW0	conus catus
22	286	75.7	66	5	Q9N6F8	conus catus
23	281	74.3	66	5	Q9NCV9	conus catus
24	274	72.5	66	5	Q9NCV8	conus catus
25	228.5	60.4	72	5	Q9XZL5	conus stria
26	225.5	59.7	72	5	Q9XZL4	conus stria
27	223.5	59.1	67	5	Q9XZ15	conus stria
28	219.5	58.1	67	5	Q9N646	conus stria
29	204.5	54.1	67	5	Q9NCU7	conus stria
30	204.5	54.1	67	5	Q9N604	conus stria
31	203.5	53.8	67	5	Q9NCU2	conus stria
32	201.5	53.3	67	5	Q9NCU3	conus stria
33	194.5	51.5	72	5	Q9NCU8	conus stria
34	194.5	51.5	67	5	Q9NCU5	conus stria
35	192.5	50.9	72	5	Q9NCU6	conus stria
36	192.5	50.9	72	5	Q9NCU9	conus stria
37	175	46.3	81	5	Q9BP83	conus arena
38	168.5	44.6	79	5	Q9BP78	conus abbre
39	162.5	43.0	71	5	Q9UA87	conus abbre
40	159.5	42.2	71	5	Q9TVX4	conus abbre
41	159.5	42.2	70	5	Q9UA87	conus abbre
42	152.5	40.3	71	5	Q9UA90	conus abbre
43	151.5	40.1	70	5	Q9BP82	conus arena
44	150.5	39.8	71	5	Q9UA88	conus arena
45	150.5	39.8	76	5	Q9BP81	conus arena

ALIGNMENTS

RESULT 1
Q9NCV1

ID	Q9NCV1	PRELIMINARY;	PRT;	66 AA.

AC   Q9NCV1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_6;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174245; AAF89909.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1   1
SQ   SEQUENCE   66 AA;   6976 MW;   29A992736137DA05 CRC64;

Query Match   89.7%; Score 339; DB 5; Length 66;
Best Local Similarity   97.0%; Pred. No. 2.3e-36;
Matches 64; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy   6 VVIVAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGVTGKPCSRIAYNCCTGSC 65
          ||||||||||||||||||||||||||||||||||||||||||||| ||||||||||||||
Db   1 VVIVAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKAAGKPCSRIAYNCCTGSC 60

Qy   66 RSGKCG 71
          ||||||
Db   61 RSGKCG 66

RESULT 2

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ID   Q9N6N6       PRELIMINARY;   PRT;   66 AA.
AC   Q9N6N6;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_5, AND CSTRH_1_1;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174244; AAF89908.1; -.
DR   EMBL; AF174240; AAF89904.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;   6966 MW;   29A992710CA7DA05 CRC64;

Query Match             87.6%;  Score 331;  DB 5;  Length 66;
Best Local Similarity   95.5%;  Pred. No. 2.5e-35;
Matches    63;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
         |||||||||||||||||||||||||||||||||||||||| ||  | |||||||||||||
Db   1 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKAAGKSCSRIAYNCCTGSC 60

Qy  66 RSGKCG 71
        ||||||
Db  61 RSGKCG 66
```

RESULT 3

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ID   Q9NCV3       PRELIMINARY;   PRT;   66 AA.
AC   Q9NCV3;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_3;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174242; AAF89906.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;   7019 MW;   89B89B7AF1A7C7B3 CRC64;

Query Match             86.8%;  Score 328;  DB 5;  Length 66;
Best Local Similarity   93.9%;  Pred. No. 6.2e-35;
Matches    62;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
         |||||||||||||||||||||||||||| ||| |||||||||||  | |||||||||||||
Db   1 VVIVAVLLLTACQLITADDSRGTQKHRTLRSKTKLSMSTRCKAAGKPCSRIAYNCCTGSC 60
```

RESULT 4

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ID   Q9NCV4       PRELIMINARY;   PRT;   66 AA.
AC   Q9NCV4;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_2;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174241; AAF89905.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;   6980 MW;   286F491D7CA7DA05 CRC64;

Query Match             86.5%;  Score 327;  DB 5;  Length 66;
Best Local Similarity   93.9%;  Pred. No. 8.3e-35;
Matches    62;  Conservative    1;  Mismatches    3;  Indels    0;  Gaps    0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
         |||||||||||||||| ||||||||||||||||||||||||  | | |||||||||||||
Db   1 VVIVAVLLLTACQLITAEDSRGTQKHRALRSDTKLSMSTRCKAAGKSCSRIAYNCCTGSC 60

Qy  66 RSGKCG 71
        ||||||
Db  61 RSGKCG 66
```

RESULT 5

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ID   Q9NCV2       PRELIMINARY;   PRT;   66 AA.
AC   Q9NCV2;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_4;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174243; AAF89907.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;   7033 MW;   887E40168IA7C7B3 CRC64;

Query Match             85.7%;  Score 324;  DB 5;  Length 66;
Best Local Similarity   92.4%;  Pred. No. 2e-34;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
         |||||||||||||||||||||||||||| ||| |||||||||||  | |||||||||||||
Db   1 VVIVAVLLLTACQLITADDSRGTQKHRTLRSKTKLSMSTRCKAAGKPCSRIAYNCCTGSC 60
```

```
Matches  61; Conservative   1; Mismatches   4; Indels   0; Gaps   0;

Qy    6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
        ||||||
Db    1 VVIVAVLLTACQLITAEDSRGTQKHRTLRSKTKLSMSTRCKAAGKPCSRIAYNCCTGSC 60

Qy   66 RSGKCG 71
        ||||||
Db   61 RSGKCG 66
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RESULT 6
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ID   Q9NCV0              PRELIMINARY;      PRT;     66 AA.
AC   Q9NCV0;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_7;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174246; AAF89910.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  6981 MW;  20CDC33D7CA7DA05 CRC64;
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Query Match             85.4%;  Score 323;  DB 5;  Length 66;
Best Local Similarity   92.4%;  Pred. No. 2.7e-34;
Matches  61; Conservative   2; Mismatches   3; Indels   0; Gaps   0;

Qy    6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
        ||||||
Db    1 VVIVAVLLTACQLITAEDSRCTQKHIRALRSDTELSMSTRCKAAGKSCSRIAYNCCTGSC 60

Qy   66 RSGKCG 71
        ||||||
Db   61 RSGKCG 66
```

RESULT 7
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ID   Q9NCU1              PRELIMINARY;      PRT;     66 AA.
AC   Q9NCU1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_R_1;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174267; AAF89931.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  6951 MW;  0D9868C0A7A1A39F CRC64;
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Query Match             82.5%;  Score 312;  DB 5;  Length 66;
Best Local Similarity   89.4%;  Pred. No. 7.2e-33;
Matches  59; Conservative   2; Mismatches   5; Indels   0; Gaps   0;

Qy    6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
        ||||||
Db    1 VVIVAVLLTACQLITADDSRGTQKHRSLRSTTKVSKSTRCKAAGKSCSRIAYNCCTGSC 60

Qy   66 RSGKCG 71
        ||||||
Db   61 RSGKCG 66
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RESULT 8
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ID   Q9N628              PRELIMINARY;      PRT;     66 AA.
AC   Q9N628;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_III_9, AND CCATH_III_6;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174229; AAF89893.1; -.
DR   EMBL; AF174226; AAF89890.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  7057 MW;  E7AA5E310968B7DA CRC64;
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Query Match             81.7%;  Score 309;  DB 5;  Length 66;
Best Local Similarity   87.9%;  Pred. No. 1.8e-32;
Matches  58; Conservative   3; Mismatches   5; Indels   0; Gaps   0;

Qy    6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
        ||||||
Db    1 VVIVAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKSTGASCRRTSYDCCTGSC 60

Qy   66 RSGRCG 71
        ||||||
Db   61 RSGRCG 66
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RESULT 9
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ID   Q9NCW3              PRELIMINARY;      PRT;     66 AA.
AC   Q9NCW3;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_11_7;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
```

RT   eating Conus ";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
RT
DR   EMBL; AF174220; AAF89884.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1
FT   1
SQ   SEQUENCE   66 AA; 7054 MW; E9FE5B310968A1AC CRC64;

Query Match   81.7%; Score 309; DB 5; Length 66;
Best Local Similarity 87.9%; Pred. No. 1.8e-32;
Matches   58; Conservative   3; Mismatches   5; Indels   0; Gaps   0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTIGKPCSRIAYNCCTGSC 65
          ||||||||||||||||| :|||||||||||||||||||||||| | : : :|: ||||||
Db   1 VVIVAVLLLTACQLITANDSRGTQKHRALRSDTKLSMSTRCKGKGASCRRTSYDCCTGSC 60

Qy   66 RSGKCG 71
          ||:||
Db   61 RSGRCG 66

RESULT 10
ID   Q9N633   PRELIMINARY;   PRT;   66 AA.
AC   Q9N633;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_11_1, AND CCATH_11_2;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus ";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
RT
DR   EMBL; AF174219; AAF89883.1; -.
DR   EMBL; AF174214; AAF89878.1; -.
DR   EMBL; AF174215; AAF89879.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1
FT   1
SQ   SEQUENCE   66 AA; 7053 MW; E445338A6968A1AC CRC64;

Query Match   80.4%; Score 304; DB 5; Length 66;
Best Local Similarity 86.4%; Pred. No. 7.8e-32;
Matches   57; Conservative   4; Mismatches   5; Indels   0; Gaps   0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTIGKPCSRIAYNCCTGSC 65
          ||||||||||||||||| :|||||||||||||||||||||||| | : : :|: ||||||
Db   1 VVIVAVLLLTACQLITANDSRGTQKHRALRSDTKLSMSTRCKGKGASCRRTSYDCCTGSC 60

Qy   66 RSGKCG 71
          ||:||
Db   61 RSGRCG 66

RESULT 11
ID   Q9N625   PRELIMINARY;   PRT;   66 AA.
AC   Q9N625;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;

OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=VARIOUS STRAINS;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus ";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174228; AAF89892.1; -.
DR   EMBL; AF174221; AAF89885.1; -.
DR   EMBL; AF174222; AAF89886.1; -.
DR   EMBL; AF174224; AAF89888.1; -.
DR   EMBL; AF174225; AAF89889.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1
FT   1
SQ   SEQUENCE   66 AA; 7056 MW; EA11338A69688B7DA CRC64;

Query Match   80.4%; Score 304; DB 5; Length 66;
Best Local Similarity 86.4%; Pred. No. 7.8e-32;
Matches   57; Conservative   4; Mismatches   5; Indels   0; Gaps   0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
          ||||||||||||||||| :|||||||||||||||||||||||: : : :| ||||||
Db   1 VVIVAVLLLTACQLITANDSRGTQKHRALRSDTKLSMSTRCKSTGASCRRTSYDCCTGSC 60

Qy   66 RSGKCG 71
          ||:||
Db   61 RSGRCG 66

RESULT 12
ID   Q9NCW4   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCW4;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_11_5;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus ";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174218; AAF89882.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1
FT   1
SQ   SEQUENCE   66 AA; 6995 MW; E445338A6AA7A1AC CRC64;

Query Match   80.2%; Score 303; DB 5; Length 66;
Best Local Similarity 86.4%; Pred. No. 1e-31;
Matches   57; Conservative   3; Mismatches   6; Indels   0; Gaps   0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
          ||||||||||||||||| :|||||||||||||||||||||||: : : :| ||||||
Db   1 VVIVAVLLLTACQLITANDSRGTQKHRALRSDTKLSMSTRCKGKGASCRRTSYGCCTGSC 60

Qy   66 RSGKCG 71
          ||:||
Db   61 RSGRCG 66

RESULT 13

Query Match   80.4%; Score 304; DB 5; Length 66;
Best Local Similarity 86.4%; Pred. No. 7.8e-32;
Matches   57; Conservative   4; Mismatches   5; Indels   0; Gaps   0;

Qy   6 VVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
          ||||||||||||||||| :|||||||||||||||||||||||: : : :| ||||||
Db   1 VVIVAVLLLTACQLITANDSRGTQKHRALRSDTKLSMSTRCKSTGASCRRTSYDCCTGSC 60

Qy   66 RSGKCG 71
          ||:||
Db   61 RSGRCG 66

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Q9NCW1
ID   Q9NCW1        PRELIMINARY;      PRT;     66 AA.
AC   Q9NCW1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174227; AAF89891.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  7066 MW;  EA11338A6968B415 CRC64;

Qy          6 VVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 VVIVAVLLITACQLITANDSRGTQKHRALRSDTKLSMSTRCKSTGASCRRPYDCCTGSC 60

Qy         66 RSGKCG 71
              |||:||
Db         61 RSGRCG 66
```

```
RESULT 14
Q9NCV5
ID   Q9NCV5        PRELIMINARY;      PRT;     66 AA.
AC   Q9NCV5;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174238; AAF89902.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  7081 MW;  66E4898A6968B31B CRC64;

Query Match         79.4%;  Score 300;  DB 5;  Length 66;
Best Local Similarity   84.8%;  Pred. No. 2.6e-31;
Matches    56;  Conservative    5;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          6 VVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 VVIVAVLLITACQLITANDSRGTQKHRALRSDTKLSMSTRCQGRGASCRRTSYDCCTGSC 60

Qy         66 RSGKCG 71
              |||:||
Db         61 RSGRCG 66
```

```
RESULT 15
Q9NCW6
ID   Q9NCW6        PRELIMINARY;      PRT;     66 AA.
AC   Q9NCW6;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174216; AAF89880.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  7023 MW;  E445339B6968B0AC CRC64;

Query Match         79.1%;  Score 299;  DB 5;  Length 66;
Best Local Similarity   84.8%;  Pred. No. 3.4e-31;
Matches    56;  Conservative    4;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          6 VVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNCCTGSC 65
              -||||||||||||||||||||||||||||||||||||||||||| | |:||||||||||
Db          1 VVIVAVLLITACQLITANDSRGAQKHRALRSDTKLSMSTRCKGKGASCRRTSYDCCTGSC 60

Qy         66 RSGKCG 71
              |||:||
Db         61 RSGRCG 66
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Search completed: May 20, 2003, 15:40:51
Job time : 77.9167 secs

OM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
Copyright (c) 1993 - 2003 Compugen Ltd.

Run on: May 20, 2003, 15:23:35 ; Search time 20.7083 Seconds
(without alignments)
142.205 Million cell updates/sec

Title: US-09-910-082A-190
Perfect score: 378
Sequence: 1 MKLTCVVIVAVLLTACQLI.........PCSRIAYNCCTGSCRSGKCG 71

Scoring table: BLOSUM62
                Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

Database :   SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID		Description
1	353	93.4	71	1	CXO3_CONST	Q9X2K2	conus stria
2	333	88.1	71	1	CXOA_CONMA	P05484	conus magus
3	329	87.0	71	1	CXOA_CONCT	P58917	conus catus
4	309.5	81.9	72	1	CXOB_CONST	P28881	conus stria
5	309	81.7	73	1	CXOD_CONCT	P58920	conus catus
6	259.5	68.7	73	1	CXO6_CONGE	P01522	conus geogr
7	233.5	61.8	72	1	CXK7_CONPU	P56633	conus purpu
8	229.5	60.7	72	1	CXOA_CONST	P28880	conus stria
9	228.5	60.4	72	1	CXO2_CONST	P58913	conus stria
10	225.5	59.7	72	1	CXO1_CONST	P58915	conus stria
11	222.5	58.9	77	1	CXO5_CONST	P58916	conus stria
12	219	57.9	77	1	CXO4_CONST	P58919	conus stria
13	163.5	43.3	74	1	CXO2_CONPL	P58918	conus pulic
14	135.5	35.8	78	1	CXDA_CONTE	P58511	conus textl
15	135	35.7	78	1	CXK1_CONTE	P58512	conus textl
16	130.5	34.5	76	1	CXD5_CONTE	Q9XZ12	conus textl
17	128	33.9	77	1	CXK2_CONTE	Q9XZ11	conus textl
18	126	33.3	81	1	CXD5_CONPU	P18513	conus purpu
19	121.5	32.1	76	1	CXO1_CONTE	Q9XZ13	conus textl
20	114.5	30.3	29	1	CXOC_CONMA	P37300	conus magus
21	114	30.2	29	1	CXOD_CONMA	Q26350	conus magus
22	110	29.1	76	1	CXO2_CONTE	Q9XZK9	conus textl
23	106	28.0	76	1	CXO3_CONTE	Q9XZ10	conus textl
24	106	28.0	82	1	CXD6_CONST	Q9XZK5	conus stria
25	105	27.8	25	1	CXOB_CONMA	P05485	conus magus
26	104.5	27.6	26	1	CXOC_CONCT	P58919	conus catus
27	101	26.7	25	1	CXMB_CONCT	P58918	conus catus
28	101	26.7	25	1	CXMB_CONMR	O26443	conus marmo
29	99.5	26.3	82	1	CXO4_CONTE	Q9XZ11	conus textl
30	99	26.2	81	1	CXO7_CONCN	Q9XZ16	conus conso
31	98.5	26.1	27	1	CXO7_CONPL	P58916	conus pulic
32	92	24.3	82	1	CXO6_CONTE	Q9XZ13	conus textl
33	75.5	20.0	27	1	CXO6_CONRA	P58914	conus radia
34	67.5	17.9	29	1	CXO7_CONGE	P05483	conus geogr
35	64.5	17.1	111	1	YLM1_CAEEL	P34375	caenorhabdi
36	63.5	16.8	51	1	LYS1_CITFR	P06962	citrobacter
37	63	16.7	75	1	MER1_EUPRA	P10774	euplotes ra
38	63	16.7	522	1	PME_PRUPE	Q43062	prunus pers
39	63	16.7	4753	1	LRP_CAEEL	Q04833	caenorhabdi
40	62.5	16.5	26	1	CXO7_CONTE	P56714	conus textl
41	61.5	16.3	52	1	CTL2_NPVOP	O10286	orgyia pseu
42	61.5	16.3	909	1	LDL1_XENLA	Q99087	xenopus lae
43	61.5	16.3	63	1	COW3_CONTE	O09da6	conus textl
44	61	16.1	107	1	NPAB_LOCMI	P10776	locusta mig
45	61	16.1	325	1	EGIP_ANTCR	P15217	anthocidari

ALIGNMENTS

RESULT 1
CX03_CONST   STANDARD;   PRT;   71 AA.

ID   CX03_CONST
AC   Q9X2K2;
DT   16-OCT-2001 (Rel. 40, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-type conotoxin SO3 precursor.
GN   SO3.
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC) (By
CC   similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.
CC   --
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   --
DR   EMBL; AF146348; AAD31908.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Signal; Amidation.
FT   SIGNAL   1   22
FT   PROPEP   23   44   POTENTIAL.
FT   PEPTIDE   45   70   OMEGA-TYPE CONOTOXIN SO3.
FT   DISULFID   46   61   BY SIMILARITY.
FT   DISULFID   53   65   BY SIMILARITY.
FT   DISULFID   60   70   BY SIMILARITY.
FT   MOD_RES   70   70   AMIDATION (G-71 PROVIDE AMIDE GROUP)
FT   (POTENTIAL).
SQ   SEQUENCE   71 AA;   7628 MW; CE7070DCE3094D73 CRC64;

Query Match   93.4%; Score 353; DB 1; Length 71;
Best Local Similarity   93.0%; Pred. No. 1.4e-31;
Matches   66; Conservative   1; Mismatches   4; Indels   0; Gaps   0;

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Qy    1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDIKLSMSTRCKGTGKPCSRIAYNC 60
        |||||:||||||||||||||||||||||||||||| |||||||||||  ||||||||||||
Db    1 MKLTCMVIVAVLLLTACQLITADDSRGTQKHRTLRSKTKLSMSTRCKAAGKPCSRIAYNC 60

Qy   61 CTGSCRSGKCG 71
        |||||||||||
Db   61 CTGSCRSGKCG 71
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RESULT 2

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ID   CXOA_CONMA     STANDARD;      PRT;    71 AA.
AC   P05484;
DT   01-NOV-1988 (Rel. 09, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin MVIIA precursor (SNX-111) (Ziconotide).
OS   Conus magus (Magus cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6492;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
RN   [2]
RP   SEQUENCE OF 46-70.
RX   MEDLINE=87299637; PubMed=2441741;
RA   Olivera B.M., Cruz L.J., de Santos V., Lecheminant G.W., Griffin D.,
RA   Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,
RA   Rivier J.E.;
RT   "Neuronal calcium channel antagonists. Discrimination between calcium
RT   channel subtypes using omega-conotoxin from Conus magus venom.";
RL   Biochemistry 26:2086-2090(1987).
RN   [3]
RP   SEQUENCE OF 46-70.
RX   MEDLINE=86070213; PubMed=4071055;
RA   Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,
RA   Rivier J.E., de Santos V., Cruz L.J.;
RT   "Peptide neurotoxins from fish-hunting cone snails.";
RL   Science 230:1338-1343(1985).
RN   [4]
RP   DISULFIDE BONDS.
RX   MEDLINE=8537186;
RA   Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;
RT   "Determination of disulfide bridge pattern in omega-conopeptides.";
RL   Int. J. Pept. Protein Res. 46:320-325(1995).
RN   [5]
RP   SYNTHESIS, AND MUTAGENESIS OF LYS-47 AND TYR-58.
RX   PubMed=7826361;
RA   Kim J.I., Takahashi M., Ohtake A., Wakamiya A., Sato K.;
RT   "Tyr13 is essential for the activity of omega-conotoxin MVIIA and
RT   GVIA, specific N-type calcium channel blockers.";
RL   Biochem. Biophys. Res. Commun. 206:449-454(1995).
RN   [6]
RP   STRUCTURE BY NMR.
RX   MEDLINE=95367555; PubMed=7640281;
RA   Kohno T., Kim J.I., Kobayashi K., Kodera Y., Maeda T., Sato K.;
RT   "Three-dimensional structure in solution of the calcium channel
RT   blocker omega-conotoxin MVIIA.";
RL   Biochemistry 34:10256-10265(1995).
RN   [7]
RP   STRUCTURE BY NMR.
RX   PubMed=7656969;
RA   Basus V.J., Nadasdi L., Ramachandran J., Miljanich G.P.;
RT   "Solution structure of omega-conotoxin MVIIA using 2D NMR
RT   spectroscopy.";
RL   FEBS Lett. 370:163-169(1995).
RN   [8]
RP   STRUCTURE BY NMR.
RX   MEDLINE=97070382; PubMed=8913308;
RA   Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;
RT   "A consensus structure for omega-conotoxins with different
RT   selectivities for voltage-sensitive calcium channel subtypes:
RT   comparison of MVIIA, SVIB and SNX-202.";
RL   J. Mol. Biol. 263:297-310(1996).
RN   [9]
RP   STRUCTURE BY NMR.
RX   PubMed=10373375;
RA   Nielsen K.J., Adams D., Thomas L., Bond T., Alewood P.F., Craik D.J.,
RA   Lewis R.J.;
RT   "Structure-activity relationships of omega-conotoxins MVIIA, MVIIC and
RT   14 loop splice hybrids at N and P/Q-type calcium channels.";
RL   J. Mol. Biol. 289:1405-1421(1999).
RN   [10]
RP   STRUCTURE BY NMR.
RX   PubMed=10747778;
RA   Atkinson R.A., Kieffer B., Dejaegere A., Sirockin F., Lefevre J.-F.;
RT   "Structural and dynamic characterization of omega-conotoxin MVIIA: the
RT   binding loop exhibits slow conformational exchange.";
RL   Biochemistry 39:3908-3919(2000).
RN   [11]
RP   STRUCTURE BY NMR.
RX   MEDLINE=21243158; PubMed=11344322;
RA   Goldenberg D.P., Koehn R.E., Gilbert D.E., Wagner G.;
RT   "Solution structure and backbone dynamics of an omega-conotoxin
RT   precursor.";
RL   Protein Sci. 10:538-550(2001).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC). This toxin
CC       blocks N-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- PHARMACEUTICAL: Is under clinical trial by Neurex. It blocks acute
CC       pain in patients who no longer obtain relief from opiate drugs. It
CC       is 100 to 1000 times more potent than morphine. By blocking
CC       calcium channels it disable nerves that transmit pain signals.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
CC   -!- DATABASE: NAME=Ziconotide Source; NOTE=Web site on ziconotide;
CC       WWW="http://docmd.com/ziconotide/".
DR   PIR; C60133; C60133.
DR   PIR; JH0700; JH0700.
DR   PDB; 1OMG; 03-APR-96.
DR   PDB; 1MVI; 12-AUG-97.
DR   PDB; 1DW4; 01-MAR-00.
DR   PDB; 1DW5; 01-MAR-00.
DR   PDB; 1DW6; 01-MAR-00.
DR   PDB; 1FEO; 23-AUG-00.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal; 3D-structure; Pharmaceutical.
FT   SIGNAL        1     22       POTENTIAL.
FT   PROPEP       23     45
FT   PEPTIDE      46     70       OMEGA-CONOTOXIN MVIIA.
FT   DISULFID     46     61
FT   DISULFID     53     65
FT   DISULFID     60     70
FT   MOD_RES      70     70       AMIDATION (G-71 PROVIDE AMIDE GROUP).
FT   MUTAGEN      47     47       K->A: LITTLE DECREASE IN ACTIVITY.
FT   MUTAGEN      58     58       Y->A: STRONG DECREASE IN ACTIVITY.
SQ   SEQUENCE    71 AA;   7587 MW;  E2A32725C81AF31D CRC64;
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Query Match             88.1%;  Score 333;  DB 1;  Length 71;
Best Local Similarity   88.7%;  Pred. No. 2e-29;
Matches   63;  Conservative   2;  Mismatches   6;  Indels   0;  Gaps   0;

Qy    1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDIKLSMSTRCKGTGKPCSRIAYNC 60
        |||||:||||||||||||||||||||||||||||||||| ||||||||| | |:|||| :|
Db    1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSTTKLSTSTRCKGKGAKCSRLMYDC 60
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RESULT 3
CXOA_CONCT

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Qy  61 CTGSCRSGKCG 71
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Db  61 CTGSCRSGKCG 71
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ID   CXOA_CONCT     STANDARD;      PRT;   71 AA.
AC   P58917;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin CVIA precursor.
OS   Conus catus (Cat cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A., SEQUENCE OF 46-70, AND SYNTHESIS.
RC   TISSUE=Venom duct, and Venom;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
CC   -!- FUNCTION: Omega-conotoxin act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (By
CC       similarity). This toxin blocks N-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal.
FT   SIGNAL        1     22
FT   PROPEP       23     45
FT   PEPTIDE      46     70       OMEGA-CONOTOXIN CVIA.
FT   DISULFID     46     61       BY SIMILARITY.
FT   DISULFID     53     65       BY SIMILARITY.
FT   DISULFID     60     70       BY SIMILARITY.
FT   MOD_RES      70     70       AMIDATION (G-71 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   71 AA;  7665 MW;  B99D9C7C74996D01 CRC64;
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Query Match             87.0%;  Score 329; DB 1;  Length 71;
Best Local Similarity   85.9%;  Pred. No. 5.5e-29;
Matches   61;  Conservative   5;  Mismatches   5;  Indels   0;  Gaps   0;

Qy  1 MKLTCVVIVAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        ||||||||||:||||||||||||||||||||||||||||||||||| :||:|:|:|:|
Db  1 MKLTCVVIVAMLLTACQLITANDSRGTQKHRALRSDTKLSMSTRCKSTGASCRRTSYDC 60
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RESULT 4
CXOB_CONST

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Qy  61 CTGSCRSGRCG 71
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Db  61 CTGSCRSGRCG 71
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ID   CXOB_CONST     STANDARD;      PRT;   72 AA.
AC   P28881; Q9UB25;
DT   01-DEC-1992 (Rel. 24, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin SVIB precursor (SNX-183).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RC   TISSUE=Venom;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
RN   [2]
RP   SEQUENCE OF 46-71, AND SYNTHESIS.
RC   TISSUE=Venom;
RX   MEDLINE=93003172; PubMed=1390774;
RA   Ramilo C., Zafaralla G.C., Nadasdi L., Hammerland L.G., Yoshikami D.,
RA   Gray W.R., Kristipati R., Ramachandran J., Miljanich G., Olivera B.M.,
RA   Cruz L.J.;
RT   "Novel alpha- and omega-conotoxins from Conus striatus venom.";
RL   Biochemistry 31:9919-9926(1992).
RN   [3]
RP   STRUCTURE BY NMR.
RX   MEDLINE=97070382; PubMed=8913308;
RA   Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;
RT   "A consensus structure for omega-conotoxins with different
RT   selectivities for voltage-sensitive calcium channel subtypes:
RT   comparison of MVIIA, SVIB and SNX-202.";
RL   J. Mol. Biol. 263:297-310(1996).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC). This toxin
CC       blocks N-, P-, and Q-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
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DR   EMBL; AF146346; AAD31906.1; -.
DR   PIR; C44379; C44379.
DR   PDB; 1MVJ; 12-AUG-97.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal; 3D-structure.
FT   SIGNAL        1     22
FT   PROPEP       23     45
FT   PEPTIDE      46     71       OMEGA-CONOTOXIN SVIB.
FT   DISULFID     46     61
FT   DISULFID     53     65
FT   DISULFID     60     71
FT   MOD_RES      71     71       AMIDATION (G-72 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   72 AA;  7741 MW;  1F753546AAD39908 CRC64;
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Query Match             81.9%;  Score 309.5; DB 1;  Length 72;
Best Local Similarity   83.3%;  Pred. No. 6.8e-27;
Matches   60;  Conservative   5;  Mismatches   6;  Indels   1;  Gaps   1;

Qy  1 MKLTCVVIVAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
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Db  1 MKLTCVVIVAVLLTACQLITADDSRGTQKHRALRSDTKLPMSTRCKLRGQSCRKTSYDC 60
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RESULT 5
CXOD_CONCT

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Qy  61 CTGSC-RSGKCG 71
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Db  61 CSGSCGRSGKCG 72
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ID   CXOD_CONCT     STANDARD;      PRT;   73 AA.
AC   P58920;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
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DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin CVID precursor.
OS   Conus catus (Cat cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A., SEQUENCE OF 46-72, SYNTHESIS, AND STRUCTURE BY
RP   NMR.
RC   TISSUE=Venom duct, and Venom;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (BY
CC       similarity). This toxin blocks N-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal.
FT   SIGNAL        1     22
FT   PROPEP       23     45
FT   PEPTIDE      46     72       OMEGA-CONOTOXIN CVID.
FT   DISULFID     46     61       BY SIMILARITY.
FT   DISULFID     53     65       BY SIMILARITY.
FT   DISULFID     60     72       BY SIMILARITY.
FT   MOD_RES      72     72       AMIDATION (G-73 PROVIDE AMIDE GROUP).
SQ   SEQUENCE     73 AA;   7748 MW;   C4CEBD30C77DAEC3 CRC64;

Query Match  81.7%;   Score 309;   DB 1;   Length 73;
Best Local Similarity  80.8%;   Pred. No. 7.8e-27;
Matches 59;   Conservative 5;   Mismatches 7;   Indels 2;   Gaps 1;

Qy    1  MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC  60
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Db    1  MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKSKGAKCSKLMYDC  60

Qy   61  CTGSCRS--GKCG  71
         |:||| |:||
Db   61  CSGSCSGTVGRCG  73


RESULT 6
CX06_CONGE
CX06_CONGE   STANDARD;   PRT;   73 AA.
P01522;
21-JUL-1986 (Rel. 01, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Omega-conotoxin GVIA precursor (Shaker peptide) (SNX-124) [Contains:
Omega-conotoxin GVIB; Omega-conotoxin GVIC].
Conus geographus (Geography cone).
Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
Neogastropoda; Conoidea; Conidae; Conus.
NCBI_TaxID=6491;
[1]
SEQUENCE FROM N.A.
MEDLINE=93069266; PubMed=1440648;
Colledge C.J., Hunsperger J.P., Imperial J.S., Hillyard D.R.;
"Precursor structure of omega-conotoxin GVIA determined from a cDNA
clone.";
Toxicon 30:1111-1116(1992).
[2]
SEQUENCE OF 46-73.
MEDLINE=85072796; PubMed=6509012;
Olivera B.M., McIntosh J.M., Cruz L.J., Luque F.A., Gray W.R.;
"Purification and sequence of a presynaptic peptide toxin from Conus
geographus venom.";
Biochemistry 23:5087-5090(1984).
[3]
STRUCTURE BY NMR OF GVIA.
MEDLINE=94047089; PubMed=8230223;
Pallaghy P.K., Duggan B.M., Pennington M.W., Norton R.S.;
"Three-dimensional structure in solution of the calcium channel
blocker omega-conotoxin.";
J. Mol. Biol. 234:405-420(1993).
[4]
STRUCTURE BY NMR OF GVIA.
MEDLINE=93332945; PubMed=8338837;
Davis J.H., Bradley E.K., Miljanich G.P., Nadasdi L.,
Ramachandran J., Basus V.J.;
"Solution structure of omega-conotoxin GVIA using 2-D NMR
spectroscopy and relaxation matrix analysis.";
Biochemistry 32:7396-7405(1993).
[5]
STRUCTURE BY NMR OF GVIA.
MEDLINE=99245506; PubMed=10231724;
Pallaghy P.K., Norton R.S.;
"Refined solution structure of omega-conotoxin GVIA: implications for
calcium channel binding.";
J. Pept. Res. 53:343-351(1999).
-!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
    and block voltage-sensitive calcium channels (VSCC).
-!- SUBCELLULAR LOCATION: Secreted.
-!- TISSUE SPECIFICITY: Expressed by the venom duct.
-!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
    FAMILY.
--------------------------------------------------------------------------
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or send an email to license@isb-sib.ch).
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EMBL; M84612; AAA81590.1; -.
PIR; A60133; NTKN6G.
PIR; A44006; A44006.
PDB; 2CCO; 15-JUL-98.
PDB; 1OMC; 31-JAN-94.
PDB; 1OMG; 31-JAN-94.
InterPro; IPR004214; Conotoxin.
Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Hydroxylation; Amidation; Signal; 3D-structure.
FT   SIGNAL        1     22
FT   PROPEP       23     45
FT   PEPTIDE      46     72       OMEGA-CONOTOXIN GVIB.
FT   PEPTIDE      46     72       OMEGA-CONOTOXIN GVIA.
FT   PEPTIDE      46     71       OMEGA-CONOTOXIN GVIC.
FT   MOD_RES      49     49       HYDROXYLATION.
FT   MOD_RES      55     55       HYDROXYLATION.
FT   MOD_RES      66     66       HYDROXYLATION.
FT   MOD_RES      72     72       AMIDATION (G-73 PROVIDE AMIDE GROUP) (IN
FT                                GVIA).
FT   DISULFID     46     61
FT   DISULFID     53     64
FT   DISULFID     60     71
FT   STRAND       47     49
FT   TURN         50     52
FT   STRAND       55     58
FT   TURN         60     60
FT   STRAND       64     66
FT   TURN         69     69
FT   STRAND       66     70
FT   TURN         70     71
SQ   SEQUENCE     73 AA;   7851 MW;   51A8C8FA630F7175 CRC64;

Query Match  68.7%;   Score 259.5;   DB 1;   Length 73;
Best Local Similarity  80.0%;   Pred. No. 1.6e-21;
```

Matches   52;   Conservative   3;   Mismatches   9;   Indels   1;   Gaps   1;

Qy   1 MKLTCVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        ||||||||||||||||||||||||||||||||||||| ||:|||||:|||||||||||:
Db   1 MKLTCVIVAVLLLTACQLITADDSRGTQKHRALGSTTELSLSTRCKSPGSSCSPTSYNC 60

Qy   61 CTGSC 65
        || ||
Db   61 CR-SC 64

RESULT 7

CKX7_CONPU

ID   CKX7_CONPU   STANDARD;   PRT;   72 AA.
AC   P56633;
DT   15-DEC-1998 (Rel. 37, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Kappa-conotoxin PVIIA precursor (Fin-popping peptide).
OS   Conus purpurascens (Purple cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=41690;
RN   [1]
RP   SEQUENCE FROM N.A., AND SYNTHESIS.
RX   MEDLINE=98079023; PubMed=9417043;
RA   Shon K.-J., Stocker M., Terlau H., Stuehmer W., Jacobsen R.B.,
RA   Walker C.S., Grilley M.M., Watkins M., Hillyard D.R., Gray W.R.,
RA   Olivera B.M.;
RT   "Kappa-conotoxin PVIIA is a peptide inhibiting the shaker K+
RT   channel.";
RL   J. Biol. Chem. 273:33-38(1998).
RN   [2]
RP   SEQUENCE OF 46-72, AND SYNTHESIS.
RX   PubMed=12074021;
RA   Terlau H., Shon K.-J., Grilley M.M., Stocker M., Stuehmer W.,
RA   Olivera B.M.;
RT   "Strategy for rapid immobilization of prey by a fish-hunting marine
RT   snail.";
RL   Nature 381:148-151(1996).
RN   [3]
RP   STRUCTURE BY NMR.
RC   TISSUE=Venom;
RX   MEDLINE=98104087; PubMed=9438859;
RA   Scanlon M.J., Naranjo D., Thomas L., Alewood P.F., Lewis R.J.,
RA   Craik D.J.;
RT   "Solution structure and proposed binding mechanism of a novel
RT   potassium channel-blocking toxin kappa-conotoxin PVIIA.";
RL   Structure 5:1585-1597(1997).
RN   [4]
RP   STRUCTURE BY NMR.
RX   MEDLINE=98217295; PubMed=9548922;
RA   Savarin P., Guenneugues M., Gilquin B., Lamthanh H., Gasparini S.,
RA   Zinn-Justin S., Menez A.;
RT   "Three-dimensional structure of kappa-conotoxin PVIIA, a novel
RT   potassium channel toxin from cone snails.";
RL   Biochemistry 37:5407-5416(1998).
RN   [5]
RP   MUTAGENESIS OF ARG-47; ILE-48; PRO-49; GLN-51; LYS-52; PHE-54;
RP   PHE-54; GLN-55; HIS-56; LEU-57; ASP-58; ASP-59; SER-62; ARG-63;
RP   LYS-64; ARG-67; PHE-68; ASN-69 AND LYS-70.
RX   PubMed=10818087;
RA   Jacobsen R.B., Koch E.D., Lange-Malecki B., Stocker M., Verhey J.,
RA   Van Wagoner R.M., Vyazovkina A., Olivera B.M., Terlau H.;
RT   "Single amino acid substitutions in kappa-conotoxin PVIIA disrupt
RT   interaction with the shaker K+ channel.";
RL   J. Biol. Chem. 275:24639-24644(2000).
RN   [6]
RP   BLOCKADE OF SHAKER CHANNEL BY PVIIA.
RX   PubMed=10398696;
RA   Terlau H., Boccaccio A., Olivera B.M., Conti F.;
RT   "The block of Shaker K+ channels by kappa-conotoxin PVIIA is state
RT   dependent.";
RL   J. Gen. Physiol. 114:125-140(1999).
RN   [7]
RP   MODEL OF THE SHAKER-PVIIA INTERACTION.
RX   PubMed=11820396;
RA   Moran O.;
RT   "Molecular simulation of the interaction of kappa-conotoxin PVIIA with
RT   the Shaker potassium channel pore.";
RL   Eur. Biophys. J. 30:528-536(2001).
RN   [8]
RP   BLOCKADE OF SHAKER CHANNEL BY PVIIA.
RX   PubMed=12023223;
RA   Naranjo D.;
RT   "Inhibition of single Shaker K channels by kappa-conotoxin-PVIIA.";
RL   Biophys. J. 82:3003-3011(2002).
-!- FUNCTION: Kappa-conotoxins bind and inhibit voltage-sensitive
CC   potassium channels. The rat brain voltage-gated potassium channel
CC   protein Kv1.1 is resistant to this toxin, but the voltage-gated
CC   potassium channel protein Shaker (Drosophila) is sensitive. The
CC   interaction site is between the Shaker channel and this toxin is
CC   within the S5-S6 loop of the Shaker channel. In fish, this toxin
CC   induces hyperactivity, followed by continuous contraction and
CC   extension of major fins, without immobilization or death.
CC   Injection of this peptide together with the delta-conotoxin PVIA
CC   causes the sudden tetanus of prey (STOP) syndrome, which is a
CC   single, lethal "fin-pop" in envenomated fish. In mice, induces
CC   hyperactivity.
-!- SUBCELLULAR LOCATION: Secreted.
-!- TISSUE SPECIFICITY: Expressed by the venom duct.
-!- MASS SPECTROMETRY: MW=3268.4; METHOD=FAB.
-!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS.
-!- CAUTION: Because analogs resulting of mutagenesis of Hyp-49, Asn-
CC   50, Leu-57 and Asp-59 gave very low yields upon folding, the
CC   results of mutagenesis on these residues should be interpreted
CC   with caution.
DR   PDB; 1AV3; 18-NOV-98.
DR   PDB; 1KCP; 14-OCT-98.
KW   Neurotoxin; Toxin; Potassium channel inhibitor; Hydroxylation;
KW   3D-structure; Signal.
FT   SIGNAL   1   22
FT   PROPEP   23   45
FT   PEPTIDE   46   72   KAPPA-CONOTOXIN PVIIA.
FT   PROPEP   46   46   POTENTIAL.
FT   DISULFID   46   61
FT   DISULFID   53   65
FT   DISULFID   60   71
FT   MOD_RES   49   49   HYDROXYLATION.
FT   MUTAGEN   47   47   R->A,R,Q: 100% REDUCTION OF TOXICITY.
FT   MUTAGEN   48   48   I->A: 3-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   49   49   P->A: 100% REDUCTION OF TOXICITY.
FT   MUTAGEN   50   50   N->A: 100% REDUCTION OF TOXICITY.
FT   MUTAGEN   51   51   Q->A: 13-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   52   52   K->A,R: 100% REDUCTION OF TOXICITY.
FT   MUTAGEN   54   54   F->A,M: 100% REDUCTION OF TOXICITY.
FT   MUTAGEN   54   54   F->Y: 11-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   55   55   Q->A: 3-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   56   56   H->A: 3-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   57   57   L->A: 5-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   58   58   D->A: 1.5-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   59   59   D->A: 1.5-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   62   62   S->A: 1.5-FOLD REDUCTION OF TOXICITY.
FT   MUTAGEN   63   63   R->A: 3.5-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   64   64   K->A: 1.2-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   67   67   R->A: 5-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   68   68   F->A: 17-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   69   69   N->A: 19-FOLD DECREASE OF TOXICITY.
FT   MUTAGEN   70   70   K->A: 117-FOLD DECREASE OF TOXICITY.
SQ   SEQUENCE   72 AA;   8317 MW;   53BFAF79EE751C16 CRC64;

Query Match   61.8%;   Score 233.5;   DB 1;   Length 72;
Best Local Similarity 67.6%;   Pred. No. 9.9e-19;
Matches   48;   Conservative   6;   Mismatches   16;   Indels   1;   Gaps   1;

Qy   1 MKLTCVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        ||||||||| || |||||||||||||||||||||||| ||:|||||:|||||||||||: :|

Db   1 MKLTCVVIVVLFLTACQLITADDSRRTQKHRALRSTTKLSLSTRCRIPNQKCFQHLDDC 60

Qy   61 CTGSC-RSGKC 70
          :| :|:||| |||
Db   61 CSRKCNRFNKC 71

RESULT 8
CXOA_CONST

Qy   1 MKLTCVVIVVLFLTACQLITADDSRRTQKHRALRSTTKLSLSTRCRIPNQKCFQHLDDC 60
        ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1 MKLTCVVIVVLFLTACQLITADDSRRTQKHRALRSTTKLSLSTRCRIPNQKCFQHLDDC 60

RESULT 8
ID   CXOA_CONST   STANDARD;   PRT;   72 AA.
AC   P28880; Q9UB26;
DT   01-DEC-1992 (Rel. 24, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin SVIA precursor (SNX-157).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
RN   [2]
RP   SEQUENCE OF 49-72, AND SYNTHESIS.
RX   MEDLINE=93003172; PubMed=1390774;
RA   Ramilo C., Zafaralla G.C., Nadasdi L., Hammerland L.G.,
RA   Gray W.R., Kristipati R., Ramachandran J., Miljanich G., Olivera B.M.,
RA   Cruz L.J.;
RT   "Novel alpha- and omega-conotoxins from Conus striatus venom.";
RL   Biochemistry 31:9919-9926(1992).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.

DR   EMBL; AF146347; AAD31907.1; -.
DR   PIR; B44379; B44379.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Hydroxylation; Signal.
FT   SIGNAL   1   22
FT   PROPEP   23   48
FT   PEPTIDE   49   72   OMEGA-CONOTOXIN SVIA.
FT   DISULFID   56   66
FT   DISULFID   49   71
FT   DISULFID   62   72
FT   MOD_RES   55   55   HYDROXYLATION.
FT   MOD_RES   72   72   AMIDATION.
SQ   SEQUENCE   72 AA;   7830 MW;   4A6A412E450469A1 CRC64;

Query Match   60.7%;   Score 229.5; DB 1; Length 72;
Best Local Similarity   64.4%;   Pred. No. 2.6e-18;
Matches   47; Conservative 6; Mismatches 15; Indels 5; Gaps 2;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTIKLSMS---TRCKGTGKPCSRIA 57
        |||||| :|:|| ||||||||||||:||||||||:| | ::: :: |:: :| | ||
Db   ...   TRCKGTGKPCSRIA 57

Db   1 MKLTCVMIVAVLLLTACQLITAEDSRGTQKHRTLRSTARRSKSESTTRCRSSGSPCG--V 58

Qy   59 TSICCGRCYRGKC 71

RESULT 9
CXO2_CONST

Qy   1 MKLTCVMIVAVLLLTACQLITAEDSRGTQKHRTLRSTARRSKSESTTRCRSSGSPCG--V 58
        |||||||||||||||||||||||||||||||||||||||||||||||||||||||| ||
Db   1 MKLTCVMIVAVLLLTACQLITAEDSRGTQKHRTLRSTARRSKSESTTRCRSSGSPCG--V 58

Qy   59 TSICCGRCYRGKC 71
        |||||||||||||
Db   59 TSICCGRCYRGKC 71

RESULT 9
ID   CXO2_CONST   STANDARD;   PRT;   72 AA.
AC   Q9XZL5;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin SVIA mutant 2 precursor.
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC) (By
CC   similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.

DR   EMBL; AF146361; AAD31921.1; -.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Hydroxylation; Signal.
FT   SIGNAL   1   22
FT   PROPEP   23   48
FT   PEPTIDE   49   72   OMEGA-CONOTOXIN SVIA MUTANT 2.
FT   DISULFID   56   66   BY SIMILARITY.
FT   DISULFID   49   71   BY SIMILARITY.
FT   DISULFID   62   72   BY SIMILARITY.
FT   MOD_RES   55   55   HYDROXYLATION (BY SIMILARITY).
FT   MOD_RES   72   72   AMIDATION (BY SIMILARITY).
SQ   SEQUENCE   72 AA;   7790 MW;   4A7E1124F0B7F061 CRC64;

Query Match   60.4%;   Score 228.5; DB 1; Length 72;
Best Local Similarity   63.0%;   Pred. No. 3.4e-18;
Matches   46; Conservative 8; Mismatches 14; Indels 5; Gaps 2;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSD---TKLSMSTRCKGTGKPCSRIA 57
        |||||| :||||||||||||||:||||||||:| | ::   ::: ::| :|: | | ||
Db   1 MKLTCMVIVAVLLLTACQLITAEDSRGTQKHRTLRSTARRSKSELTTRCRPSGSPCG--V 58

RESULT 10
CXO1_CONST

```
ID   CXO1_CONST    STANDARD;    PRT;    72 AA.
AC   Q9XZI4;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin SVIA mutant 1 precursor.
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (By
CC       similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
CC   -----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC   entities requires a license agreement (see http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   -----------------------------------------------------------------------
DR   EMBL; AF146360; AAD31920.1; -.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Hydroxylation; Signal.
FT   SIGNAL        1     22
FT   PROPEP       23     48
FT   PEPTIDE      49     72       OMEGA-CONOTOXIN SVIA MUTANT 1.
FT   DISULFID     56     66       BY SIMILARITY.
FT   DISULFID     62     71       BY SIMILARITY.
FT   MOD_RES      72     72       HYDROXYLATION (BY SIMILARITY).
FT   MOD_RES      72     72       AMIDATION (BY SIMILARITY).
SQ   SEQUENCE   72 AA;  7804 MW;  4A7E05608IAD5420 CRC64;

Query Match     59.7%;
Best Local Similarity   63.08%;
                                    Score 225.5; DB 1; Length 72;
Matches   46;  Conservative   7;  Mismatches   15;  Indels   5;  Gaps   2;
                                    Pred. No. 7.1e-18;

Qy    1  MKLTCVVIAVLLTACQLITADDSRGTQKHRALRSD---TKLSMSTRCKGTGKPCSRIA 57
         |||||||||||||||||||:||||| :||||:||     :| ::||||:||||||||
Db    1  MKLTCVIVAVLLTACQLITAEDSRGAQKHRTLRSTARRSKSELTTRCRPSGSPCG--V 58

Qy   58  YNCCTGSCRSGKC 70
         : ||| |||
Db   59  TSICCGRCYRGKC 71
```

RESULT 11
CX05_CONST

```
ID   CX05_CONST    STANDARD;    PRT;    77 AA.
AC   Q9XZK4;
DT   16-OCT-2001 (Rel. 40, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-type conotoxin S05 precursor.
GN   SO5.
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (By
CC       similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
CC   -----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
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CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (see http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   -----------------------------------------------------------------------
DR   EMBL; AF146350; AAD31910.1; -.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Signal.
FT   SIGNAL        1     22
FT   PROPEP       23     42
FT   PEPTIDE      43     77       OMEGA-TYPE CONOTOXIN SO5.
FT   DISULFID     46     61       BY SIMILARITY.
FT   DISULFID     53     64       BY SIMILARITY.
FT   DISULFID     60     71       BY SIMILARITY.
SQ   SEQUENCE   77 AA;  8372 MW;  0FB5F480C7709CE9 CRC64;

Query Match     58.9%;
Best Local Similarity   70.8%;
                                    Score 222.5; DB 1; Length 77;
Matches   46;  Conservative   3;  Mismatches   15;  Indels   1;  Gaps   1;
                                    Pred. No. 1.6e-17;

Qy    1  MKLTCVVIAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
         |||||| :|||||||||||||||||||||||:|||::|:|||:|||||||||||::
Db    1  MKLTCVMIVAVLLTACQLITADDSRGTQKHRSLRSTKVSKSTSCMEAGSYCGSTTRIC 60

Qy   61  CTGSC 65
         |||
Db   61  C-GYC 64
```

RESULT 12
CXO4_CONST

```
ID   CXO4_CONST    STANDARD;    PRT;    78 AA.
AC   Q9XZK3;
DT   16-OCT-2001 (Rel. 40, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-type conotoxin S04 precursor.
GN   SO4.
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
```

CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC) (By
CC   similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.
CC   --

DR   EMBL; AF132130; AAD33586.1; -.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Signal.
FT   SIGNAL   1   22   POTENTIAL.
FT   PROPEP   23   46   POTENTIAL.
FT   PEPTIDE   47   74   OMEGA-CONOTOXIN PnIIA.
FT   DISULFID 48   62   BY SIMILARITY.
FT   DISULFID 55   66   BY SIMILARITY.
FT   DISULFID 61   73   BY SIMILARITY.
SQ   SEQUENCE 74 AA; 8318 MW; 8B9265C15A669440 CRC64;

Query Match   43.3%; Score 163.5; DB 1; Length 74;
Best Local Similarity 59.1%; Pred. No. 3.3e-11;
Matches   39; Conservative   4; Mismatches 22; Indels   1; Gaps   1;

Qy   1 MKLTCVVIVAVLLLTACQLITADD-SRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYN 59
         |||||||||||| ||||||||| ||| ||||| | |:|| : :| | |: |
Db   1 MKLTCVVIVAVLFLTACQLITAEFYSRGEQKHRALSSTDKNSRLTRRCNTPTQYCTLHRH 60

Qy   60 CCTGSC 65
         || | |
Db   61 CCSLYC 66

RESULT 13

CX02_CONPL

ID   CX02_CONPL   STANDARD;   PRT;   74 AA.
AC   Q9XYZ1;
DT   16-OCT-2001 (Rel. 40, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin PnIIA precursor.
OS   Conus pulicarius (Flea-bite cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=93154;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Zhao D., Yao J., Dai Q., Huang P.;
RL   Submitted (MAR-1999) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC) (By
CC   similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.
CC   --

DR   EMBL; AF146349; AAD31909.1; -.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Signal.
FT   SIGNAL   1   22   POTENTIAL.
FT   PROPEP   23   42   POTENTIAL.
FT   PEPTIDE   43   78   OMEGA-TYPE CONOTOXIN SO4.
FT   DISULFID 46   62   BY SIMILARITY.
FT   DISULFID 53   65   BY SIMILARITY.
FT   DISULFID 61   72   BY SIMILARITY.
SQ   SEQUENCE 78 AA; 8527 MW; A391E1EF92I0C6C8 CRC64;

Query Match   57.9%; Score 219; DB 1; Length 78;
Best Local Similarity 67.7%; Pred. No. 3.8e-17;
Matches   44; Conservative   4; Mismatches 17; Indels   0; Gaps   0;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
         |||||:||||||||||||||||||||||||||:||| ||:|:| :| ||:
Db   1 MKLTCMVIVAVLLLTACQLITADDSRGTQKHRSLRSTTKVSKRATDCIEAGNYCGPTVMKI 60

Qy   61 CTGSC 65
         || ||
Db   61 CCGFC 65

RESULT 14

CXDA_CONTE

ID   CXDA_CONTE   STANDARD;   PRT;   78 AA.
AC   P18511;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Delta-conotoxin TxVIA precursor (TxIA) (Conotoxin TxVIA) (Conotoxin King-Kong 0) (KK-0).
OS   Conus textile (cloth-of-gold cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6494;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Neovicarius;
RX   MEDLINE=90214607; PubMed=1691090;
RA   Woodward S.R., Cruz L.J., Olivera B.M., Hillyard D.R.;
RT   "Constant and hypervariable regions in conotoxin propeptides.";
RL   EMBO J. 9:1015-1020(1990).
RN   [2]
RP   SEQUENCE OF 52-78.
RX   MEDLINE=89207553; PubMed=2706261;
RA   Hillyard D.R., Olivera B.M., Woodward S.R., Corpuz G.P., Gray W.R.,
RA   Ramilo C.A., Cruz L.J.;
RT   "A molluscivorous Conus toxin: conserved frameworks in conotoxins.";
RL   Biochemistry 28:358-361(1989).
RN   [3]
RP   SEQUENCE OF 52-78.
RX   MEDLINE=92104183; PubMed=1761058;
RA   Fainzilber M., Gordon D., Hasson A., Spira M.E., Zlotkin E.;
RT   "Mollusc-specific toxins from the venom of Conus textile
RT   neovicarius.";
RL   Eur. J. Biochem. 202:589-595(1991).
RN   [4]
RP   CHARACTERIZATION.
RX   MEDLINE=94084232; PubMed=8261090;
RA   Hasson A., Fainzilber M., Gordon D., Zlotkin E., Spira M.E.;
RT   "Alteration of sodium currents by new peptide toxins from the venom of
RT   a molluscivorous Conus snail.";
RL   Eur. J. Neurosci. 5:56-64(1993).
RN   [5]
RP   CHARACTERIZATION.
RX   PubMed=8300586;
RA   Fainzilber M., Kofman O., Zlotkin E., Gordon D.;
RT   "A new neurotoxin receptor site on sodium channels is identified by a

RT conotoxin that affects sodium channel inactivation in molluscs and
RT acts as an antagonist in rat brain.";
RL J. Biol. Chem. 269:2574-2580(1994).
RN [6]
RP DISULFIDE BONDS.
RC TISSUE=Venom;
RX MEDLINE=95001845; PubMed=7918355;
RA Shon K.-J., Hasson A., Spira M.E., Cruz L.J., Gray W.R., Olivera B.M.;
RT "Delta-conotoxin GmVIA, a novel peptide from the venom of Conus
RT gloriamaris.";
RL Biochemistry 33:11420-11425(1994).
CC -!- FUNCTION: Delta-conotoxins bind to voltage-sensitive sodium
CC   channel (VSSC) and inhibit the inactivation process. Binding of
CC   this toxin is strongly calcium-dependent but not voltage-
CC   dependent. The binding site is most likely on the extracellular
CC   side of the sodium channel. Binds receptor sites on both mollusk
CC   and rat central nervous system, but despite its high affinity
CC   binding to rat sodium channel, it has no functional effect in vivo
CC   and in vitro on it. Has also no effect on Gambusia fish. Is
CC   important in mollusk for the paralysis of the prey. Upon injection
CC   of the peptide, a subordinate lobster assumes an exaggerated
CC   dominant posture (of a 'King-Kong' lobster)).
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- MISCELLANEOUS: Veratridine increases the rate of dissociation in a
CC   dose-dependent manner.
CC -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. DELTA-TYPE
CC   FAMILY.
CC --
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC --
DR EMBL; X53283; CAA37377.1; -.
DR PIR; A30103; A30103.
DR Pfam; PF02950; Conotoxin; 1.
DR InterPro; IPR004214; Conotoxin.
KW Neurotoxin; Toxin; Sodium channel inhibitor; Signal;
KW Cleavage on pair of basic residues.
FT SIGNAL   1   22
FT PROPEP   23   51
FT PEPTIDE   52   78   DELTA-CONOTOXIN TXVIA.
FT DISULFID   53   68
FT DISULFID   60   72
FT DISULFID   67   77
SQ SEQUENCE   78 AA; 8760 MW; C5CBFD462AD40A35 CRC64;

Query Match   35.8%; Score 135.5; DB 1; Length 78;
Best Local Similarity   40.3%;
Matches   29; Conservative   12; Mismatches   24; Indels   7; Gaps   2;

Qy   1 MKLTCVVIAVLLLTACQLITADDSRG------------TQKHRALRSDTKLSMSTR-CKGTGKPC 53
             ||||||:::|||||||| ||||| :|| ||||||||||||| ||| ||| |
Db   1 MKLTCMMIVAVLFLTAWTFATADDPRNGLGNLFSNAHEMKNPEASKLNKRWCKQSGEMC 60

Qy   54 SRIAYNCCTGSC 65
             :||| ||| | |
Db   61 NLLDQNCCDGYC 72

OS Conus textile (Cloth-of-gold cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6494;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90214607; PubMed=1691090;
RA Woodward S.R., Cruz L.J., Olivera B.M., Hillyard D.R.;
RT "Constant and hypervariable regions in conotoxin propeptides.";
RL EMBO J. 9:1015-1020(1990).
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- MISCELLANEOUS: THE CYSTEINE PATTERN OF KK-0, KK-1, AND KK-2 ARE
CC   IDENTICAL.
CC -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS.
CC --
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
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CC or send an email to license@isb-sib.ch).
CC --
DR EMBL; X53284; CAA37378.1; -.
DR PIR; S12514; S12514.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
KW Neurotoxin; Toxin; Signal; Cleavage on pair of basic residues.
FT SIGNAL   1   22   POTENTIAL.
FT PROPEP   23   49
FT PEPTIDE   52   77   CONOTOXIN KING-KONG 1.
FT DISULFID   52   67   BY SIMILARITY.
FT DISULFID   59   71   BY SIMILARITY.
FT DISULFID   66   76   BY SIMILARITY.
SQ SEQUENCE   77 AA; 8690 MW; A3EA4B5AC834E5A4 CRC64;

Query Match   35.7%; Score 135; DB 1; Length 77;
Best Local Similarity   39.4%;
Matches   28; Conservative   10; Mismatches   27; Indels   6; Gaps   1;

Qy   1 MKLTCVVIAVLLLTACQLITADDSRG-----------TQKHRALRSDTKLSMSTRCKCKGTGKPCS 54
             ||||||:||||||||||||| ::| | |
Db   1 MKLTCMMIVAVLFLTAWTFATADDSSNGLENLFSKAHHEMKRNPEASKLNKRCIEQFDPCE 60

Qy   55 RIAYNCCTGSC 65
             | |||| | |
Db   61 MIRHTCCVGVC 71

Search completed: May 20, 2003, 15:38:59
Job time : 21.7083 secs

RESULT 15
ID CXK1_CONTE   STANDARD;   PRT;   77 AA.
AC P18512;
DT 01-NOV-1990 (Rel. 16, Created)
DT 01-NOV-1990 (Rel. 16, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Conotoxin King-Kong 1 precursor (KK-1).

Query Match   35.7%; Score 135; DB 1; Length 77;
Best Local Similarity   39.4%;
Matches   28; Conservative   10; Mismatches   27; Indels   6; Gaps   1;

Qy   1 MKLTCVVIAVLLLTACQLITADDSRG-----------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
             ||||||:||||||||||||| ::| | |
Db   1 MKLTCMMIVAVLFLTAWTFATADDSSNGLENLFSKAHHEMKRNPEASKLNKRCIEQFDPCE 60

Qy   55 RIAYNCCTGSC 65
             | |||| | |
Db   61 MIRHTCCVGVC 71

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OM protein - protein search, using sw model

                                    GenCore version 5.1.4_p5_4578
                                    Copyright (c) 1993 - 2003 Compugen Ltd.

Run on:          May 20, 2003, 15:22:55 ; Search time 77.6562 Seconds
                                    (without alignments)
                                    121.829 Million cell updates/sec

Title:           US-09-910-082A-190
Perfect score:   378
Sequence:        1 MKLTCVVIVAVLLTACQLI..............PCSRIAYNCCTGSCRSGKCG 71

Scoring table:   BLOSUM62
                 Gapop 10.0 , Gapext 0.5

Searched:        908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters:.       908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 08
                 Maximum Match 100%
                 listing first 45 summaries

Database :       A_Geneseq_101002:*
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      2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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     22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*
     23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*
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SUMMARIES

Result No.	%Score	Query Match Length	DB	ID	Description
1	378	100.0	71	23	ABB96657	Omega-conopeptide
2	377	99.7	71	23	ABB96634	Omega-conopeptide
3	376	99.5	71	23	ABB96629	Omega-conopeptide
4	359	95.0	71	23	ABB96680	Omega-conopeptide
5	356	94.2	71	21	AAY87541	Conotoxin peptide
6	352	93.1	71	23	ABB96607	Omega-conopeptide
7	350	92.6	71	23	ABB96661	Omega-conopeptide
8	349	92.3	71	23	ABB96609	Omega-conopeptide
9	327	86.5	71	23	ABB96632	Omega-conopeptide
10	324	85.7	71	14	AAR38795	Conotoxin preprope

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

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     11  324  85.7  71  23  ABB96662  Omega-conopeptide
     12  319  84.4  71  23  ABB96659  Omega-conopeptide
     13  314  83.1  71  23  ABB96631  Omega-conopeptide
     14  311  82.3  71  23  ABB96624  Omega-conopeptide
     15  306  81.0  71  23  ABB96675  Omega-conopeptide
     16  305  80.7  71  23  ABB96614  Omega-conopeptide
     17  304  80.4  71  23  ABB96697  Omega-conopeptide
     18  304  80.4  71  21  AAY43717  Amino acid sequenc
     19  303  80.2  71  23  ABB96626  Omega-conopeptide
     20  301  79.6  71  23  ABB96683  Omega-conopeptide
     21  300  79.4  71  23  ABB96692  Omega-conopeptide
     22  296  78.3  71  23  ABB96616  Omega-conopeptide
     23  296  78.3  71  23  ABB96690  Omega-conopeptide
     24  271.5 71.8  75  23  ABB96653  Omega-conopeptide
     25  269.5 71.3  74  23  ABB96641  Omega-conopeptide
     26  268.5 71.0  75  23  ABB96671  Omega-conopeptide
     27  268.5 71.0  75  23  ABB96646  Omega-conopeptide
     28  259.5 68.7  73  23  AAR38796  Conotoxin preprope
     29  259.5 68.7  73  23  ABB96640  Omega-conopeptide
     30  259.5 68.7  73  23  ABB96642  Omega-conopeptide
     31  251.5 66.5  72  23  ABB96681  Omega-conopeptide
     32  248.5 65.7  72  23  ABB96633  Omega-conopeptide
     33  248.5 65.7  72  23  ABB96558  Omega-conopeptide
     34  247.5 65.5  76  23  ABB96689  Omega-conopeptide
     35  247.5 65.5  73  23  ABB96687  Omega-conopeptide
     36  241.5 63.9  73  23  ABB96688  Omega-conopeptide
     37  239   63.2  73  23  ABB96667  Omega-conopeptide
     38  239   63.2  73  23  ABB96645  Omega-conopeptide
     39  237.5 62.8  74  23  ABB96554  Omega-conopeptide
     40  237.5 62.8  76  23  ABB96612  Omega-conopeptide
     41  235.5 62.3  72  23  ABB96647  Omega-conopeptide
     42  233.5 61.8  72  23  ABB96610  Omega-conopeptide
     43  233.5 61.8  77  23  ABB96608  Omega-conopeptide
     44  232   61.4  72  23  ABB96677  Omega-conopeptide
     45  232   61.4  76  23  ABB96595  Omega-conopeptide
```

ALIGNMENTS

```
RESULT 1
ABB96657
ID   ABB96657 standard; peptide; 71 AA.
XX
AC   ABB96657;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide M6.1 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
OS   Conus magus.
XX
PN   WO20020207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-2196169.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH )  UNIV UTAH RES FOUND.
PA   (COGN-)  COGNETIX INC.
```

XX
PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
DR N-PSDB; ABL98916.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurological or
PT cardiovascular disorders -
XX
PS Claim 1(c); Page 52; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of
CC the peptides of the invention may be described as, analgesic,
CC anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC Peptides of the invention act by modulating the activity of voltage gated
CC ion channels. They may be used for treating or preventing disorders
CC associated with voltage gated ion channels such as neurological
CC disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC cerebrovascular accident, brain or spinal chord trauma, drowning,
CC suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC migraine; inflammation or cardiovascular disorders. They may also be used
CC for treating psychiatric disorders e.g. psychosis, anxiety or
CC schizophrenia. The analgesic agents of the invention show diminished side
CC effects and toxicity, and are non-addictive. The sequences given in
CC records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC sequences.
XX
SQ Sequence 71 AA;

Query Match   100.0%; Score 378; DB 23; Length 71;
Best Local Similarity   100.0%; Pred. No. 4.3e-33;
Matches   71; Conservative   0; Mismatches   0; Indels   0; Gaps   0;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
              |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60

Qy   61 CTGSCRSGKCG 71
              |||||||||||
Db   61 CTGSCRSGKCG 71

RESULT 2
ABB96634
ID ABB96634 standard; Peptide; 71 AA.
AC ABB96634;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Cn6.7 propeptide.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
OS Conus consors.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.

XX
PR 23-JUL-2001; 2001WO-US23041.
PR 21-JUL-2000; 2000US-219616P.
PR 05-FEB-2001; 2001US-265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
DR N-PSDB; ABL98893.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurological or
PT cardiovascular disorders -
XX
PS Claim 1(c); Page 40; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of
CC the peptides of the invention may be described as, analgesic,
CC anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC Peptides of the invention act by modulating the activity of voltage gated
CC ion channels. They may be used for treating or preventing disorders
CC associated with voltage gated ion channels such as neurological
CC disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC cerebrovascular accident, brain or spinal chord trauma, drowning,
CC suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC migraine; inflammation or cardiovascular disorders. They may also be used
CC for treating psychiatric disorders e.g. psychosis, anxiety or
CC schizophrenia. The analgesic agents of the invention are non-addictive. The sequences given in
CC records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC sequences.
XX
SQ Sequence 71 AA;

Query Match   99.7%; Score 377; DB 23; Length 71;
Best Local Similarity   98.6%; Pred. No. 5.5e-33;
Matches   70; Conservative   1; Mismatches   0; Indels   0; Gaps   0;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
              |||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRVAYNC 60

Qy   61 CTGSCRSGKCG 71
              |||||||||||
Db   61 CTGSCRSGKCG 71

RESULT 3
ABB96629
ID ABB96629 standard; Peptide; 71 AA.
AC ABB96629;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Cn6.2 propeptide.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;

KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus consors.
XX
PN WO20207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US23041.
XX
PR 21-JUL-2000; 2000US-219616P.
PR 05-FEB-2001; 2001US-265888P.
XX
DR WPI; 2002-257318/30.
DR N-PSDB; ABL98888.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurological or
PT cardiovascular disorders -
XX
PS Claim 1(c); Page 38; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of
CC the peptides of the invention may be described as, analgesic,
CC anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC migraine, inflammation or cardiovascular disorders. They may also be used
CC for treating psychiatric disorders e.g. psychosis, anxiety or
CC schizophrenia. The analgesic agents of the invention show diminished side
CC effects and toxicity, and are non-addictive. The sequences given in
CC records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC sequences.
XX
SQ Sequence 71 AA;

Query Match 99.5%; Score 376; DB 23; Length 71;
Best Local Similarity 98.6%; Pred. No. 7e-33;
Matches 70; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy   1 MKLTCVVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1 MKLTCVVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60

Qy  61 CTGSCRSGKCG 71
        |||||||||||
Db  61 CTGSCRSGKCG 71
```

RESULT 4
AB896680
ID   AB896680 standard; Peptide; 71 AA.
XX
AC   AB896680;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide S6.3 propeptide.

XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; antidiabetic; tranquilliser; vulnerary; antiinflammatory;
KW antimigraine; antidiabetic; tranquilliser; cardiovascular; antiinflammatory;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus striatus.
XX
PN WO20207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US23041.
XX
PR 21-JUL-2000; 2000US-219616P.
PR 05-FEB-2001; 2001US-265888P.
XX
DR WPI; 2002-257318/30.
DR N-PSDB; ABL98939.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurological or
PT cardiovascular disorders -
XX
PS Claim 1(c); Page 62; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of
CC the peptides of the invention may be described as, analgesic,
CC anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC Peptides of the invention act by modulating the activity of voltage gated
CC ion channels. They may be used for treating or preventing disorders
CC associated with voltage gated ion channels such as neurological
CC disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC cerebrovascular accident, brain or spinal chord trauma, drowning,
CC suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC migraine, inflammation or cardiovascular disorders. They may also be used
CC for treating psychiatric disorders e.g. psychosis, anxiety or
CC schizophrenia. The analgesic agents of the invention show diminished side
CC effects and toxicity, and are non-addictive. The sequences given in
CC records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC sequences.
XX
SQ Sequence 71 AA;

Query Match 95.0%; Score 359; DB 23; Length 71;
Best Local Similarity 95.8%; Pred. No. 4.5e-31;
Matches 68; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy   1 MKLTCVVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        |||||||||||||||||||||||||||||||||||||||||||||| |||||||||||
Db   1 MKLTCVVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKAAGKSCSRIAYNC 60

Qy  61 CTGSCRSGKCG 71
        |||||||||||
Db  61 CTGSCRSGKCG 71
```

RESULT 5

```
AAY87541
XX
ID   AAY87541 standard; protein; 71 AA.
XX
AC   AAY87541;
XX
DT   18-JUL-2000 (first entry)
XX
DE   Conotoxin peptide #11 precursor.
XX
KW   Conotoxin precursor; brocade cone shell; line cone shell; drug screening;
KW   neuronal inhibitor; muscle inhibitor; analgesic.
XX
OS   Conus sp.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 6
FT                   /note= "Encoded by ATG"
XX
PN   CN1237584-A.
XX
PD   08-DEC-1999.
XX
PF   30-APR-1999;  99CN-0106070.
XX
PR   30-APR-1999;  99CN-0106070.
XX
PA   (BIOL-) BIOLOGICAL ENG INST ACAD MILITARY MEDICI.
XX
PI   Lu B, Huang P;
XX
DR   WPI: 2000-351193/31.
DR   N-PSDB; AAA10463.
XX
PT   Conotoxin peptide from brocade cone cone shells useful as analgesic -
PT   Claim 1A; Page 5-6; 20pp; Chinese.
XX
CC   The invention relates to 14 novel mature conotoxin peptides from marine
CC   snails (Conus species); conotoxin precursor proteins; and cDNAs
CC   encoding the conotoxin precursors. The mature peptide sequences were
CC   discovered by obtaining conotoxin cDNA sequences from mRNA from the
CC   brocade cone shell (Conus textile) or the line cone shell (Conus
CC   striatus). The cDNA sequences were used to determine the conotoxin
CC   precursor protein sequences, and the sequences of the mature conotoxin
CC   peptides were inferred from the precursor sequences. The mature
CC   conotoxin peptides can be obtained via chemical synthesis or by in vitro
CC   gene expression. Conotoxins inhibit the function of neurons and muscle
CC   cells. Certain conotoxins interfere with synaptic transmission, while
CC   others act on muscle or at the neuromuscular junction. The 14 novel
CC   conotoxins have unique receptor specificity and affinity, so can be
CC   used as screening tools to identify new drugs. Conotoxin #11 (AAY87540)
CC   may be used for pain relief. Sequences AAY87421, AAY87523, AAY87525,
CC   AAY87527, AAY87529, AAY87531, AAY87533, AAY87535, AAY87537, AAY87539,
CC   AAY87541, AAY87543, AAY87545 and AAY87547 represent the precursors of
CC   conotoxins #1-#14, respectively.
XX
SQ   Sequence   71 AA;

Query Match             94.2%;  Pred. No. 9.5e-31;  Score 356;  DB 21;  Length 71;
Best Local Similarity   94.4%;
Matches    67;  Conservative  0;  Mismatches  4;  Indels  0;  Gaps  0;

Qy   1  MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        ||||||||||||||||||||||||||||||||| ||| ||||||||||   ||||||||||
Db   1  MKLTCVVIVAVLLLTACQLITADDSRGTQKHRTLRSKTKLSMSTRCKAAGKPCSRIAYNC 60

Qy  61  CTGSCRSGKCG 71
        |||||||||||
Db  61  CTGSCRSGKCG 71
```

```
ID   ABB96607 standard; peptide; 71 AA.
XX
AC   ABB96607;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Ay6.1 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus aurisiacus.
XX
PN   WO20207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI: 2002-257318/30.
DR   N-PSDB; ABL98867.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(c); Page 28; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
SQ   Sequence   71 AA;

Query Match             93.1%;  Pred. No. 2.5e-31;  Score 352;  DB 23;  Length 71;
Best Local Similarity   93.0%;
Matches    66;  Conservative  2;  Mismatches  3;  Indels  0;  Gaps  0;

Qy   1  MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        |||||||||||||||||||||||||||||||||| |:||||||||||| |||||||:|||
Db   1  MKLTCVVIVAVLLLTACQLITADDSRGTQKHRSLSSATKLSMSTRCKGKGKPCSRISYNC 60
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RESULT 6
ABB96607
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Qy    61 CTGSCRSGKCG 71
         |||||||||||
Db    61 CTGSCRSGKCG 71
```

RESULT 7
ABB96661
ID   ABB96661 standard; Peptide; 71 AA.
XX
AC   ABB96661;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Mn6.1 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus monachus.
XX
PN   WO20207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98920.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(c); Page 53; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
SQ   Sequence   71 AA;

```
Query Match   92.6%;  Score 350;  DB 23;  Length 71;
Best Local Similarity   94.4%;  Pred. No. 4.1e-30;
Matches   67; Conservative   1; Mismatches   3; Indels   0;  Gaps   0;

Qy    1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSFPRCKGTGKPCSRIANC 60
        |||| |||||||||||||||||||||||||||||||| ||||||| ||| ||| ||||||
Db    1 MKLTSVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSISTRCKSTGKSCSRIAYNC 60

Qy    61 CTGSCRSGKCG 71
         |||||||||||
Db    61 CTGSCRSGKCG 71
```

RESULT 8
ABB96609
ID   ABB96609 standard; Peptide; 71 AA.
XX
AC   ABB96609;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Ay6.3 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus aurisiacus.
XX
PN   WO20207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98869.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(c); Page 29; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.

```
CC     migraine; inflammation or cardiovascular disorders. They may also be used
CC     for treating psychiatric disorders e.g. psychosis, anxiety or
CC     schizophrenia. The analgesic agents of the invention show diminished side
CC     effects and toxicity, and are non-addictive. The sequences given in
CC     records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC     sequences.
XX
SQ     Sequence 71 AA;

Qy          1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
              |||||||||||||||||||||||||||||||:|:|||||||||||||||:|  ||||||||
Db          1 MKLTCVVIVAVLLLTFACQLITADDSRGTQKHRSLSSATKLSMSTRCKAKGKPCSRIAYNC 60

Qy         61 CTGSCRSGKCG 71
              |||||||||||
Db         61 CTGSCRSGKCG 71

Query Match           92.3%;  Score 349;  DB 23;  Length 71;
Best Local Similarity 93.0%;  Pred. No. 5.3e-30;
Matches   66;  Conservative    1;  Mismatches    4;  Indels    0;  Gaps    0;


RESULT 9
ABB96632
ID   ABB96632 standard; Peptide; 71 AA.
XX
AC   ABB96632;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide Cn6.5 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus consors.
XX
PN   WO20020207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98891.
XX
PS   Claim 1(c); Page 39; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
```

```
CC     tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC     Peptides of the invention act by modulating the activity of voltage gated
CC     ion channels. They may be used for treating or preventing disorders
CC     associated with voltage gated ion channels such as neurological
CC     disorders e.g. seizure (associated with epilepsy), neurotoxic injury
CC     associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC     cerebrovascular accident, brain or spinal chord trauma, drowning,
CC     suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC     migraine; inflammation or cardiovascular disorders. They may also be used
CC     for treating psychiatric disorders e.g. psychosis, anxiety or
CC     schizophrenia. The analgesic agents of the invention show diminished side
CC     effects and toxicity, and are non-addictive. The sequences given in
CC     records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC     sequences.
XX
SQ     Sequence 71 AA;

Qy          1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
              |||||:|||||||||||||||||||||||||||||||||||||||||| |  |:||| :|
Db          1 MKLTCMVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGKGASCHRTSYDC 60

Qy         61 CTGSCRSGKCG 71
              |||||  |||||
Db         61 CTGSCNRGKCG 71

Query Match           86.5%;  Score 327;  DB 23;  Length 71;
Best Local Similarity 85.9%;  Pred. No. 1.2e-27;
Matches   61;  Conservative    3;  Mismatches    7;  Indels    0;  Gaps    0;


RESULT 10
AAR38795
ID   AAR38795 standard; peptide; 71 AA.
XX
AC   AAR38795;
XX
DT   22-FEB-1994  (first entry)
XX
DE   Conotoxin prepropeptide MVIIB.
XX
KW   Calcium channel; four loop; toxin; MVIIB; Conus magus; GVIA; neurone;
KW   C. geographus; conotoxin; presynaptic; specificity; calcium target;
KW   cysteine; omega; framework; template domain.
XX
OS   Conus magus.
XX
FH   Key             Location/Qualifiers
FT   Region          46..70
FT                   /note= "Mature omega-toxin"
XX
PN   US5231011-A.
XX
PD   27-JUL-1993.
XX
PF   18-APR-1991;  91US-0689693.
XX
PR   18-APR-1991;  91US-0689693.
XX
PA   (UTAH ) UNIV UTAH.
XX
PI   Hillyard DR, Olivera BM;
XX
DR   WPI; 1993-249725/31.
XX
PS   Example 1; Column 8; 15pp; English.
XX
PT   Formation of cysteine-rich peptide of specified disulphide bonding -
PT   involves forming pre:pro-peptide with N-terminal excised region which
PT   acts as templates for directing disulphide bond formation in
PT   cysteine-rich peptide
XX
CC   The sequences given in AAR38795-96 represent two examples of calcium
CC   channel four loop toxins. They are MVIIB from Conus magus and GVIA
```

CC   from C. geographus. These conotoxins target presynaptic calcium
CC   channels, and have largely overlapping specificities for different
CC   calcium targets in neuronal tissue preparations. These peptides
CC   form a four loop folded toxin molecule with a specific arrangement of
CC   cysteines referred to as the omega pattern. The cysteine framework
CC   of these two peptides differs only in the exact amino acid spacing
CC   of the carboxy terminal inter-Cys domains. Beyond the similarity
CC   of the framework the two peptides are remarkably divergent. Only nine
CC   of the 21 non-Cys amino acids of the omega-GVIA are conserved in the
CC   omega-MVIIA. MVIIB and GVIA template domains are each 45 amino acids
CC   in length. They also show a >90% conservation of amino acid sequence
CC   with only 4 positions of amino acid non-identity. These two sequences
CC   illustrate the existence of two highly conserved template domains
CC   associated with two structurally dissimilar toxins.
XX
SQ   Sequence 71 AA;

Query Match   85.7%; Score 324; DB 14; Length 71;
Best Local Similarity 85.9%; Pred. No. 2.4e-27;
Matches   61; Conservative 2; Mismatches 8; Indels 0; Gaps 0;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        ||||| ||||||| |||||||||||||||||||||||||||||||||| || :|:|
Db   1 MKLTCVIVAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGKGASCHRTSYDC 60

Qy 61 CTGSCRSGKCG 71
        ||||| || ||
Db 61 CTGSCNRGDCG 71

RESULT 11
ABB96662
ID   ABB96662 standard; Peptide; 71 AA.
XX
AC   ABB96662;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Mn6.2 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus monachus.
XX
PN   WO20207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
DT   21-JUL-2000; 2000US-219616P.
     05-FEB-2001; 2001US-265888P.
XX
PR   21-JUL-2000; 2000US-219616P.
     05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98921.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders.

Query Match   85.7%; Score 324; DB 23; Length 71;
Best Local Similarity 87.3%; Pred. No. 2.4e-27;
Matches   62; Conservative 0; Mismatches 9; Indels 0; Gaps 0;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        |||| |||||||| ||||||||||||||||||||||||| ||||||| | || :||
Db   1 MKLTSVVIVAVLLTACQLITADDSRGTQKHRALRSDTINLSMSTRCKGKGSSCSRTMYNC 60

Qy 61 CTGSCRSGKCG 71
        ||||| |||
Db 61 CTGSCNRGKCG 71

RESULT 12
ABB96659
ID   ABB96659 standard; Peptide; 71 AA.
XX
AC   ABB96659;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide w-MVIIB propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus magus.
XX
PN   WO20207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
DT   21-JUL-2000; 2000US-219616P.
     05-FEB-2001; 2001US-265888P.
XX
PR   21-JUL-2000; 2000US-219616P.
     05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;

XX
PS   Claim 1(c); Page 54; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.

PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
DR N-PSDB; ABL98918.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurological or
PT cardiovascular disorders -
XX
PS Claim 1(c); Page 52; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of
CC the peptides of the invention may be described as, analgesic,
CC anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC cerebrovascular accident, brain or spinal chord trauma, drowning,
CC tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC Peptides of the invention act by modulating the activity of voltage gated
CC ion channels. They may be used for treating or preventing disorders
CC associated with voltage gated ion channels such as neurological
CC disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC cerebrovascular accident, brain or spinal chord trauma, drowning,
CC suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC migraine; inflammation or cardiovascular disorders. They may also be used
CC for treating psychiatric disorders e.g. psychosis, anxiety or
CC schizophrenia. The analgesic agents of the invention are non-addictive.
CC effects and toxicity, and are non-addictive. The sequences given in
CC records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC sequences.
XX
SQ Sequence 71 AA;

Query Match   84.4%; Score 319; DB 23; Length 71;
Best Local Similarity 85.9%; Pred. No. 8.2e-27;
Matches 61; Conservative 2; Mismatches 8; Indels 0; Gaps 0;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        |||||||||||||||||||||||||||||||||||||||||||||||| | |: |
Db   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGKGASCHRTSYDC 60

Qy 61 CTGSCRSGKCG 71
        ||||| || ||
Db 61 CTGSCNRGKFG 71

RESULT 13
ABB96631
ID   ABB96631 standard; Peptide; 73 AA.
XX
AC   ABB96631;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Cn6.4 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure;
KW   neurological disorder; neurotoxic injury; brain trauma; spinal chord trauma;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus consors.
XX
PN   WO20020767675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.

XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98890.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(c); Page 39; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention are non-addictive.
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
SQ   Sequence 73 AA;

Query Match   83.1%; Score 314; DB 23; Length 73;
Best Local Similarity 82.2%; Pred. No. 2.9e-26;
Matches 60; Conservative 5; Mismatches 6; Indels 2; Gaps 1;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
        ||||||||||||||||||||||||||||||||||||||||||||||| | |: |:|
Db   1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGKGASCTRLMYDC 60

Qy 61 CTGSCRS--GKCG 71
        | ||| | ||
Db 61 CHGSCSSSKGRCG 73

RESULT 14
ABB96624
ID   ABB96624 standard; Peptide; 71 AA.
XX
AC   ABB96624;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Cn6.1 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; brain trauma; spinal chord trauma;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.

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XX
OS   Conus circumcisus.
XX
PN   WO20207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PI   Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98883.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(c); Page 36; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
SQ   Sequence   71 AA;

Query Match             82.3%;  Score 311;  DB 23;  Length 71;
Best Local Similarity   80.3%;
Matches   57;  Conservative    5;  Mismatches    9;  Indels    0;  Gaps    0;

Qy          1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
              ||||||||||||||  |||||||||||||| |||||||| | ||| : ||||||||||||
Db          1 MKLTCVVIVAVLLLTTCQLITADDSRGTQEHRALRSDTKLPMSTRCKGKGASCRKTMYNC 60

Qy         61 CTGSCRSGKCG 71
              |:||| :|:||
Db         61 CSGSCSNGRCG 71
```

```
RESULT 15
ABB96675
ID   ABB96675 standard; Peptide; 73 AA.
XX
AC   ABB96675;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide Sm6.1 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus stercusmuscarum.
XX
PN   WO20207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PI   Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98934.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(c); Page 60; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
SQ   Sequence   73 AA;

Query Match             81.0%;  Score 306;  DB 23;  Length 73;
Best Local Similarity   80.8%;
Matches   59;  Conservative    5;  Mismatches    7;  Indels    2;  Gaps    1;

Qy          1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
              |||||||||||||||||||||||||||||||||||| |||||||||  ||  |||  ||
Db          1 MKLTCVVIVAVLLLTACQLITADDSRGTQKHRALRSKTKLSMSTRCKSKGAKCSRLMYDC 60

Qy         61 CTGSCR--SGKCG 71
              |||||   :|:||
Db         61 CSGSCSGYTGRCG 73
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OM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
Copyright (c) 1993 - 2003 Compugen Ltd.

Run on: May 20, 2003, 15:36:46 ; Search time 28.1042 Seconds
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Title: US-09-910-082A-190
Perfect score: 378
Sequence: 1 MKLTCVVIVAVLLTACQLI..........PCSRIAYNCCTGSCRSGKCG 71

Scoring table: BLOSUM62
                 Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

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                 6: /cgn2_6/ptodata/1/1aa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	330	87.3	71	1	US-07-689-693B-1	Sequence 1, Appl
2	259.5	68.7	73	1	US-07-689-693B-3	Sequence 3, Appl
3	259.5	68.7	73	1	US-08-624-123-12	Sequence 12, Appl
4	259.5	68.7	73	5	PCT-US96-05262-13	Sequence 13, Appl
5	219	57.9	45	1	US-07-689-693B-19	Sequence 19, Appl
6	198	52.4	45	1	US-07-689-693B-20	Sequence 20, Appl
7	135.5	35.8	78	1	US-07-689-693B-5	Sequence 5, Appl
8	135.5	35.8	78	1	US-08-624-123-13	Sequence 13, Appl
9	135.5	35.8	78	2	US-08-716-308-2	Sequence 2, Appl
10	135.5	35.8	78	2	US-08-716-308-16	Sequence 16, Appl
11	135.5	35.8	78	5	PCT-US96-05262-14	Sequence 14, Appl
12	135	35.7	77	2	US-08-716-308-17	Sequence 17, Appl
13	134	35.4	77	1	US-07-689-693B-7	Sequence 7, Appl
14	128	33.9	26	1	US-08-049-794-11	Sequence 11, Appl
15	128	33.9	26	1	US-08-496-847-11	Sequence 11, Appl
16	128	33.9	26	1	US-08-742-774-11	Sequence 11, Appl
17	128	33.9	26	2	US-08-675-354-11	Sequence 11, Appl
18	128	33.9	26	2	US-08-965-918-11	Sequence 11, Appl
19	128	33.9	26	2	US-09-138-439-11	Sequence 11, Appl
20	128	33.9	26	3	US-08-613-400A-11	Sequence 11, Appl
21	128	33.9	26	2	US-09-298-017-11	Sequence 11, Appl
22	128	33.9	26	4	US-09-392-979A-11	Sequence 11, Appl
23	128	33.9	77	2	US-08-716-308-18	Sequence 18, Appl
24	127	33.6	77	2	US-07-689-913-11	Sequence 11, Appl
25	127	33.6	27	1	US-07-789-913-14	Sequence 14, Appl
26	126	33.3	25	1	US-08-496-847-35	Sequence 35, Appl
27	126	33.3	25	2	US-08-965-918-35	Sequence 35, Appl
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29	126	33.3	81	1	US-08-624-123-10	Sequence 10, Appl
30	126	33.3	81	5	PCT-US96-05262-5	Sequence 5, Appl
31	123	32.5	25	1	US-08-049-794-12	Sequence 12, Appl
32	123	32.5	25	1	US-08-496-847-12	Sequence 12, Appl
33	123	32.5	25	2	US-08-742-774-12	Sequence 12, Appl
34	123	32.5	25	2	US-08-675-354-12	Sequence 12, Appl
35	123	32.5	25	2	US-08-965-918-12	Sequence 12, Appl
36	123	32.5	25	2	US-09-138-439-12	Sequence 12, Appl
37	123	32.5	25	3	US-08-613-400A-12	Sequence 12, Appl
38	123	32.5	25	3	US-08-049-794-14	Sequence 14, Appl
39	123	32.5	25	4	US-09-392-979A-12	Sequence 12, Appl
40	123	32.5	27	1	US-09-298-017-12	Sequence 12, Appl
41	123	32.5	27	1	US-08-496-847-14	Sequence 14, Appl
42	123	32.5	27	1	US-08-742-774-14	Sequence 14, Appl
43	123	32.5	27	2	US-08-675-354-14	Sequence 14, Appl
44	123	32.5	27	2	US-08-965-918-14	Sequence 14, Appl
45	123	32.5	27	2	US-09-138-439-14	Sequence 14, Appl

ALIGNMENTS

RESULT 1
US-07-689-693B-1
Sequence 1, Application US/0768969693B
Patent No. 5231011
GENERAL INFORMATION:
; APPLICANT: David Hillyard
; APPLICANT: Baldomero M. Olivera
; TITLE OF INVENTION: Segregated Folding Determinants
; TITLE OF INVENTION: for Small Disulfide-Rich Peptides
; NUMBER OF SEQUENCES: 25
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Thorpe, No. 5231011th & Western
; STREET: 9035 South 700 East, Suite 200
; CITY: Sandy
; STATE: Utah
; COUNTRY: USA
; ZIP: 84070
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.5 inch, 720 Kb storage
; COMPUTER: Compaq LTE/286
; OPERATING SYSTEM: DOS 4.01
; SOFTWARE: Word Perfect 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/689,693B
; FILING DATE: 19910418
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: none
; FILING DATE: na
; ATTORNEY/AGENT INFORMATION:
; NAME: Western, M. Wayne
; REGISTRATION NUMBER: 22,788
; REFERENCE/DOCKET NUMBER: 9925
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (801) 566-6633
; TELEFAX: (801) 566-0750
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 71 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; FEATURE:
; NAME/KEY: Prepropeptide sequence for four-loop
; NAME/KEY: MVIIB Omega conotoxin from Conus magus.
; IDENTIFICATION METHOD: Libraries were created
; IDENTIFICATION METHOD: using oligo-dT primed pUC13 vector
US-07-689-693B-1

Query Match   87.3%; Score 330; DB 1; Length 71;

Best Local Similarity 87.3%; Pred. No. 6.2e-29; Mismatches 7; Indels 0; Gaps 0;
Matches 62; Conservative 2;

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Qy   1 MKLTCVVIVAVLLLTFACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGTGKPCSRIAYNC 60
       |||||||||||||||||||||||||||||||||||| ||||||||||||:||| :|:|
Db   1 MKLTCVVIVAVLLLTFACQLITADDSRGTQKHRALRSDTKLSMSTRCKGKGASCHRTSYDC 60

Qy  61 CTGSCRSGKCG 71
       ||||| ||||
Db  61 CTGSCNRGKCG 71
```

RESULT 2
US-07-689-693B-3
Sequence 3, Application US/07689693B
Patent No. 5231011
GENERAL INFORMATION:
  APPLICANT: David Hillyard
  APPLICANT: Baldomero M. Olivera
  TITLE OF INVENTION: Segregated Folding Determinants
  TITLE OF INVENTION: for Small Disulfide-Rich Peptides
  NUMBER OF SEQUENCES: 25
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Thorpe, No. 52310111th & Western
    STREET: 9035 South 700 East, Suite 200
    CITY: Sandy
    STATE: Utah
    COUNTRY: USA
    ZIP: 84070
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Diskette, 3.5 inch, 720 Kb storage
    COMPUTER: Compaq LTE/286
    OPERATING SYSTEM: DOS 4.01
    SOFTWARE: Word Perfect 5.1
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/07/689,693B
    FILING DATE: 19910418
    CLASSIFICATION: 530
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: none
    FILING DATE: na
  ATTORNEY/AGENT INFORMATION:
    NAME: Western, M. Wayne
    REGISTRATION NUMBER: 22,788
    REFERENCE/DOCKET NUMBER: 9925
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: (801) 566-6633
    TELEFAX: (801) 566-0750
INFORMATION FOR SEQ ID NO: 3:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 73 amino acids
    TYPE: AMINO ACID
    TOPOLOGY: linear
  MOLECULE TYPE: peptide
  FEATURE:
    NAME/KEY: Prepropeptide sequence for four-loop
    NAME/KEY: GVIA Omega conotoxin from Conus geographus.
    IDENTIFICATION METHOD: Libraries were created
    IDENTIFICATION METHOD: using oligo-dT primed pUC13 vector
US-07-689-693B-3

Query Match 68.7%; Score 259.5; DB 1; Length 73;
Best Local Similarity 80.0%; Pred. No. 2.5e-21;
Matches 52; Conservative 3; Mismatches 9; Indels 1; Gaps 1;

```
Qy   1 MKLTCVVIVAVLLLTFACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGTGKPCSRIAYNC 60
       ||||||||||||||||||||||||||||||||||| :|||||| |: :||| :|:| :||
Db   1 MKLTCVVIVAVLLLTFACQLITADDSRGTQKHRALGSTTELSLSTRCKSPGSSCSPTSYNC 60

Qy  61 CTGSC 65
       | ||
Db  61 CR-SC 64
```

RESULT 3
US-08-624-123-12
Sequence 12, Application US/08624123
Patent No. 5739276
GENERAL INFORMATION:
  APPLICANT: Shon, Ki-Joon
  APPLICANT: Grilley, Michelle M.
  APPLICANT: Olivera, Baldomero M.
  TITLE OF INVENTION: Conotoxin Peptides
  NUMBER OF SEQUENCES: 13
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Venable, Baetjer, Howard & Civiletti
    STREET: 1201 New York Avenue N.W.
    CITY: Washington
    STATE: DC
    COUNTRY: US
    ZIP: 20005
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: Patentin Release #1.0, Version #1.30
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/624,123
    FILING DATE:
    CLASSIFICATION: 530
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: US 08/319,554
    FILING DATE: 07-OCT-1994
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: US 08/423,561
    FILING DATE: 17-APR-1995
  ATTORNEY/AGENT INFORMATION:
    NAME: Ihnen, Jeffrey L.
    REGISTRATION NUMBER: 28,957
    REFERENCE/DOCKET NUMBER: 24260-107674-5
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: 202-962-4810
    TELEFAX: 202-962-8300
  HYPOTHETICAL: NO
  MOLECULE TYPE: protein
    TOPOLOGY: linear
    STRANDEDNESS: single
    TYPE: amino acid
    LENGTH: 73 amino acids
  SEQUENCE CHARACTERISTICS:
INFORMATION FOR SEQ ID NO: 12:
US-08-624-123-12

Query Match 68.7%; Score 259.5; DB 1; Length 73;
Best Local Similarity 80.0%; Pred. No. 2.5e-21;
Matches 52; Conservative 3; Mismatches 9; Indels 1; Gaps 1;

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Qy   1 MKLTCVVIVAVLLLTFACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGTGKPCSRIAYNC 60
       ||||||||||||||||||||||||||||||||||| :|||||| |: :||| :|:| :||
Db   1 MKLTCVVIVAVLLLTFACQLITADDSRGTQKHRALGSTTELSLSTRCKSPGSSCSPTSYNC 60

Qy  61 CTGSC 65
       | ||
Db  61 CR-SC 64
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RESULT 4
PCT-US96-05262-13
Sequence 13, Application PCT/US9605262
GENERAL INFORMATION:
  APPLICANT: Shon, Ki-Joon
  APPLICANT: Grilley, Michelle M.
  APPLICANT: Olivera, Baldomero M.
  APPLICANT: Yoshikami, Doju
  APPLICANT: Marsh, Maren
  APPLICANT: Cruz, Lourdes J.

;APPLICANT: Hillyard, David R.
;TITLE OF INVENTION: Conotoxin Peptides
;NUMBER OF SEQUENCES: 14
;CORRESPONDENCE ADDRESS:
;ADDRESSEE: Venable, Baetjer, Howard & Civiletti, LLP
;STREET: 1201 New York Avenue, N.W., Suite 1000
;CITY: Washington
;STATE: DC
;COUNTRY: U.S.A.
;ZIP: 20005
;COMPUTER READABLE FORM:
;MEDIUM TYPE: Floppy disk
;COMPUTER: IBM PC compatible
;OPERATING SYSTEM: PC-DOS/MS-DOS
;SOFTWARE: Patentin Release #1.0, Version #1.30
;CURRENT APPLICATION DATA:
;APPLICATION NUMBER: US 08/423,561
;FILING DATE: 17-APR-1995
;CLASSIFICATION:
;PRIOR APPLICATION DATA:
;APPLICATION NUMBER: PCT/US96/05262
;FILING DATE: 17-APR-1996
;CLASSIFICATION:
;ATTORNEY/AGENT INFORMATION:
;NAME: Saxe, Stephen A.
;REGISTRATION NUMBER: 38,609
;REFERENCE/DOCKET NUMBER: 24260-107674
;TELECOMMUNICATION INFORMATION:
;TELEPHONE: 202-962-4848
;TELEFAX: 202-962-8300
;INFORMATION FOR SEQ ID NO: 13:
;SEQUENCE CHARACTERISTICS:
;LENGTH: 73 amino acids
;TYPE: amino acid
;STRANDEDNESS: single
;TOPOLOGY: linear
;MOLECULE TYPE: protein
;HYPOTHETICAL: NO

PCT-US96-05262-13

```
Query Match             68.7%;   Score 259.5;  DB 5;  Length 73;
Best Local Similarity   80.0%;
Matches   52;  Conservative    3;  Mismatches    9;  Indels    1;  Gaps    1;

Qy     1 MKLTCVVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
         |||||||| ||||||||||||||||||||||||| |:||:|||| || :|||
Db     1 MKLTCVVIAVLLITACQLITADDSRGTQKHRALGSTTELSLSTRCKSPGSSCSPTSYNC 60

Qy    61 CTGSC 65
         ||| |
Db    61 CR-SC 64
```

RESULT 5
US-07-689-693B-19
;Sequence 19, Application US/0769693B
;Patent No. 5231011
;GENERAL INFORMATION:
;APPLICANT: Baldomero M. Olivera
;APPLICANT: David Hillyard
;TITLE OF INVENTION: Segregated Folding Determinants
;TITLE OF INVENTION: for Small Disulfide-Rich Peptides
;NUMBER OF SEQUENCES: 25
;CORRESPONDENCE ADDRESS:
;ADDRESSEE: Thorpe, No. 52310111th & Western
;STREET: 9035 South 700 East, Suite 200
;CITY: Sandy
;STATE: Utah
;COUNTRY: USA
;ZIP: 84070
;COMPUTER READABLE FORM:
;MEDIUM TYPE: Diskette, 3.5 inch, 720 Kb storage
;COMPUTER: Compaq LTE/286
;OPERATING SYSTEM: DOS 4.01

;SOFTWARE: Word Perfect 5.1
;CURRENT APPLICATION DATA:
;APPLICATION NUMBER: US/07/689,693B
;FILING DATE: 19910418
;CLASSIFICATION: 530
;PRIOR APPLICATION DATA:
;APPLICATION NUMBER: none
;FILING DATE: na
;ATTORNEY/AGENT INFORMATION:
;NAME: Western, M. Wayne
;REGISTRATION NUMBER: 22,788
;REFERENCE/DOCKET NUMBER: 9925
;TELECOMMUNICATION INFORMATION:
;TELEPHONE: (801) 566-6633
;TELEFAX: (801) 566-0750
;INFORMATION FOR SEQ ID NO: 19:
;SEQUENCE CHARACTERISTICS:
;LENGTH: 45 amino acids
;TYPE: AMINO ACID
;TOPOLOGY: linear
;MOLECULE TYPE: peptide
;FEATURE:
;NAME/KEY: Signal/Pro sequence for synthesis of
;NAME/KEY: four-loop MVIIB Omega conotoxin
;IDENTIFICATION METHOD: Libraries were created
;IDENTIFICATION METHOD: using oligo-dT primed pUC13 vector
US-07-689-693B-19

```
Query Match             57.9%;   Score 219;  DB 1;  Length 45;
Best Local Similarity  100.0%;
Matches   45;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     1 MKLTCVVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTR 45
         |||||||||||||||||||||||||||||||||||||||||||||
Db     1 MKLTCVVIVAVLLITACQLITADDSRGTQKHRALRSDTKLSMSTR 45
```

RESULT 6
US-07-689-693B-20
;Sequence 20, Application US/0769693B
;Patent No. 5231011
;GENERAL INFORMATION:
;APPLICANT: David Hillyard
;APPLICANT: Baldomero M. Olivera
;TITLE OF INVENTION: Segregated Folding Determinants
;TITLE OF INVENTION: for Small Disulfide-Rich Peptides
;NUMBER OF SEQUENCES: 25
;CURRENT APPLICATION DATA:
;APPLICATION NUMBER: US/07/689,693B
;FILING DATE: 19910418
;CLASSIFICATION: 530
;PRIOR APPLICATION DATA:
;APPLICATION NUMBER: none
;FILING DATE: na
;ATTORNEY/AGENT INFORMATION:
;NAME: Western, M. Wayne
;REGISTRATION NUMBER: 22,788
;REFERENCE/DOCKET NUMBER: 9925
;TELECOMMUNICATION INFORMATION:
;TELEPHONE: (801) 566-6633
;TELEFAX: (801) 566-0750

Left column

INFORMATION FOR SEQ ID NO: 20:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 45 amino acids
    TYPE: AMINO ACID
    TOPOLOGY: linear
  MOLECULE TYPE: peptide
  FEATURE:
    NAME/KEY: Signal/Pro sequence for synthesis of
    NAME/KEY: four-loop GVIA Omega conotoxin
    IDENTIFICATION METHOD: Libraries were created
    IDENTIFICATION METHOD: using oligo-dT primed pUC13 vector
  US-07-689-693B-20

Query Match   52.4%; Score 198; DB 1; Length 45;
Best Local Similarity   91.1%; Pred. No. 6.2e-15;
Matches   41; Conservative   2; Mismatches   2; Indels   0; Gaps   0;

Qy   1 MKLTCVVIVAVLLLTACQLITFADDSRGTQKHRALRSDTKLSMSTR 45
        ||||||||||||||||||||||||||| || |||||||||||||||
Db   1 MKLTCVVIVAVLLLTACQLITFADDSRGTQKHRALGSTTELSLSTR 45

RESULT 7
US-07-689-693B-5
Sequence 5, Application US/07689693B
Patent No. 5231011
GENERAL INFORMATION:
  APPLICANT: David Hillyard
  APPLICANT: Baldomero M. Olivera
  TITLE OF INVENTION: Segregated Folding Determinants
  TITLE OF INVENTION: for Small Disulfide-Rich Peptides
  NUMBER OF SEQUENCES: 25
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Thorpe, No. 52310111th & Western
    STREET: 9035 South 700 East, Suite 200
    CITY: Sandy
    STATE: Utah
    COUNTRY: USA
    ZIP: 84070
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Diskette, 3.5 inch, 720 Kb storage
    COMPUTER: Compaq LTE/286
    OPERATING SYSTEM: DOS 4.01
    SOFTWARE: Word Perfect 5.1
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/07/689,693B
    FILING DATE: 19910418
    CLASSIFICATION: 530
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: none
    FILING DATE: na
  ATTORNEY/AGENT INFORMATION:
    NAME: Western, M. Wayne
    REGISTRATION NUMBER: 22,788
    REFERENCE/DOCKET NUMBER: 9925
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: (801) 566-6633
    TELEFAX: (801) 566-0750
INFORMATION FOR SEQ ID NO: 5:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 78 amino acids
    TYPE: AMINO ACID
    TOPOLOGY: linear
  MOLECULE TYPE: peptide
  FEATURE:
    NAME/KEY: Prepropeptide sequence for four loop
    IDENTIFICATION METHOD: Library was constructed
    IDENTIFICATION METHOD: using polyA selected mRNA transcripts purified
    IDENTIFICATION METHOD: from Conus textile venom duct tissue and cloned
    IDENTIFICATION METHOD: into the Okyama-Berg oligo-dT primed plasmid
    IDENTIFICATION METHOD: pSV7186.
  US-07-689-693B-5

Right column

RESULT 8
US-08-624-123-13
Sequence 13, Application US/0862412123
Patent No. 5739276
GENERAL INFORMATION:
  APPLICANT: Shon, Ki-Joon
  APPLICANT: Grilley, Michelle M.
  APPLICANT: Olivera, Baldomero M.
  TITLE OF INVENTION: Conotoxin Peptides
  NUMBER OF SEQUENCES: 13
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Venable, Baetjer, Howard & Civiletti
    STREET: 1201 New York Avenue N.W.
    CITY: Washington
    STATE: DC
    COUNTRY: US
    ZIP: 20005
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: Patentin Release #1.0, Version #1.30
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/624,123
    FILING DATE:
    CLASSIFICATION: 530
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: US 08/319,554
    FILING DATE: 07-OCT-1994
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: US 08/423,561
    FILING DATE: 17-APR-1995
  ATTORNEY/AGENT INFORMATION:
    NAME: Ihnen, Jeffrey L.
    REGISTRATION NUMBER: 28,957
    REFERENCE/DOCKET NUMBER: 24260-107674-5
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: 202-962-4810
    TELEFAX: 202-962-8300
INFORMATION FOR SEQ ID NO: 13:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 78 amino acids
    TYPE: amino acid
    STRANDEDNESS: single
    TOPOLOGY: linear
  MOLECULE TYPE: protein
  HYPOTHETICAL: NO
  US-08-624-123-13

Query Match   35.8%; Score 135.5; DB 1; Length 78;
Best Local Similarity   40.3%; Pred. No. 5.8e-08;
Matches   29; Conservative   12; Mismatches   24; Indels   7; Gaps   2;

Qy   1 MKLTCVVIVAVLLLTACQLITFADDSRG------TQKHRALRSDTKLSMSTR-CKGTGKPC 53
        |||||:::|||||| |||| |||| | : ::|| ::|||||||||||||:::||:::|
Db   1 MKLTCMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC 60

Qy   54 SRIAYNCCTGSC 65
         :: ||| |
Db   61 NLLDQNCCDGYC 72

Query Match   35.8%; Score 135.5; DB 1; Length 78;
Best Local Similarity   40.3%; Pred. No. 5.8e-08;
Matches   29; Conservative   12; Mismatches   24; Indels   7; Gaps   2;

Qy   1 MKLTCVVIVAVLLLTACQLITFADDSRG------TQKHRALRSDTKLSMSTR-CKGTGKPC 53
        |||||:::|||| ||| ||| |||| | : ::|| ::|||||||||||||:::||:::|
Db   1 MKLTCMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC 60

Qy   54 SRIAYNCCTGSC 65
         :: ||| |
Db   61 NLLDQNCCDGYC 72

Db   61 NLLDQNCCDGYC 72

RESULT 9
US-08-716-308-2
Sequence 2, Application US/08716308
Patent No. 5885569
GENERAL INFORMATION:
  APPLICANT: Windass, John D.
  TITLE OF INVENTION: Biological Insect Control Agent
  NUMBER OF SEQUENCES: 18
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: ZENECA Inc.
    STREET: 1800 Concord Pike
    CITY: Wilmington
    STATE: DE
    COUNTRY: USA
    ZIP: 19850
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: PatentIn Release #1.0, Version #1.25
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/716,308
    FILING DATE: 24-SEP-1996
    CLASSIFICATION: 424
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: PCT/GB95/00677
    FILING DATE: 27-MAR-1995
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: GB 9405951.6
    FILING DATE: 25-MAR-1994
  ATTORNEY/AGENT INFORMATION:
    NAME: Hohenschutz, Liza D.
    REGISTRATION NUMBER: 33,712
    REFERENCE/DOCKET NUMBER: PPD40027X/UST
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: (302) 886-1699
INFORMATION FOR SEQ ID NO: 2:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 78 amino acids
    TYPE: amino acid
    TOPOLOGY: linear
  MOLECULE TYPE: peptide

US-08-716-308-2

Query Match   35.8%;   Score 135.5;   DB 2;   Length 78;
Best Local Similarity   40.3%;   Pred. No. 5.8e-08;
Matches   29;   Conservative   12;   Mismatches   24;   Indels   7;   Gaps   2;

```
Qy  1 MKLTCVVIVAVLLLTACQLITADDSRG-----TOKHRALRSDTKLSMSTR-CKGTGKPC 53
        |||||::|||| |||   ||:  |   | ||:|:|
Db  1 MKLTCMMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC 60

Qy 54 SRIAYNCCTGSC 65
        : ||| | |
Db 61 NLLDQNCCDGYC 72
```

RESULT 10
US-08-716-308-16
Sequence 16, Application US/08716308
Patent No. 5885569
GENERAL INFORMATION:
  APPLICANT: Windass, John D.
  TITLE OF INVENTION: Biological Insect Control Agent
  NUMBER OF SEQUENCES: 18
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: ZENECA Inc.
    STREET: 1800 Concord Pike
    CITY: Wilmington
    STATE: DE

    COUNTRY: USA
    ZIP: 19850
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: PatentIn Release #1.0, Version #1.25
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/716,308
    FILING DATE: 24-SEP-1996
    CLASSIFICATION: 424
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: PCT/GB95/00677
    FILING DATE: 27-MAR-1995
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER: GB 9405951.6
    FILING DATE: 25-MAR-1994
  ATTORNEY/AGENT INFORMATION:
    NAME: Hohenschutz, Liza D.
    REGISTRATION NUMBER: 33,712
    REFERENCE/DOCKET NUMBER: PPD40027X/UST
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: (302) 886-1699
INFORMATION FOR SEQ ID NO: 16:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 78 amino acids
    TYPE: amino acid
    TOPOLOGY: linear
  MOLECULE TYPE: peptide

US-08-716-308-16

Query Match   35.8%;   Score 135.5;   DB 2;   Length 78;
Best Local Similarity   40.3%;   Pred. No. 5.8e-08;
Matches   29;   Conservative   12;   Mismatches   24;   Indels   7;   Gaps   2;

```
Qy  1 MKLTCVVIVAVLLLTACQLITADDSRG-----TOKHRALRSDTKLSMSTR-CKGTGKPC 53
        |||||::|||| |||   ||:  |   | ||:|:|
Db  1 MKLTCMMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC 60

Qy 54 SRIAYNCCTGSC 65
        : ||| | |
Db 61 NLLDQNCCDGYC 72
```

RESULT 11
PCT-US96-05262-14
Sequence 14, Application PCT/US9605262
GENERAL INFORMATION:
  APPLICANT: Shon, Ki-Joon
  APPLICANT: Grilley, Michelle M.
  APPLICANT: Olivera, Baldomero M.
  APPLICANT: Yoshikami, Doju
  APPLICANT: Marsh, Maren
  APPLICANT: Cruz, Lourdes J.
  APPLICANT: Hillyard, David R.
  TITLE OF INVENTION: Conotoxin Peptides
  NUMBER OF SEQUENCES: 14
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Venable, Baetjer, Howard & Civiletti, LLP
    STREET: 1201 New York Avenue, N.W., Suite 1000
    CITY: Washington
    STATE: DC
    COUNTRY: U.S.A.
    ZIP: 20005
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: PatentIn Release #1.0, Version #1.30
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: PCT/US96/05262
    FILING DATE: 17-APR-1996
    CLASSIFICATION:

PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/423,561
; FILING DATE: 17-APR-1995
ATTORNEY/AGENT INFORMATION:
; NAME: Saxe, Stephen A.
; REGISTRATION NUMBER: 38,609
; REFERENCE/DOCKET NUMBER: 24260-107674
TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-4848
; TELEFAX: 202-962-8300
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
; LENGTH: 78 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
PCT-US96-05262-14

Query Match   35.8%; Score 135.5; DB 5; Length 78;
Best Local Similarity 40.3%; Pred. No. 5.8e-08;
Matches 29; Conservative 12; Mismatches 24; Indels 7; Gaps 2;

```
Qy   1  MKLTCVVIVAVLLTACQLITADDSRG-----TQKHRALRSDTKLSMSTR-CKGTGKPC  53
        |||||| ::|||||  ||||       |||    |  :    ||  ||   ||
Db   1  MKLTCMMIVAVLFLTAWTFATADDPRNGLIGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC  60

Qy  54  SRIAYNCCTGSC  65
        :|||:| |  |
Db  61  NLLDQNCCDGYC  72
```

RESULT 12
US-08-716-308-17
; Sequence 17, Application US/08716308
; Patent No. 5885569
GENERAL INFORMATION:
; APPLICANT: Windass, John D.
; TITLE OF INVENTION: Biological Insect Control Agent
; NUMBER OF SEQUENCES: 18
CORRESPONDENCE ADDRESS:
; ADDRESSEE: ZENECA Inc.
; STREET: 1800 Concord Pike
; CITY: Wilmington
; STATE: DE
; COUNTRY: USA
; ZIP: 19850
COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/716,308
; FILING DATE: 24-SEP-1996
; CLASSIFICATION: 424
PRIOR APPLICATION DATA:
; APPLICATION NUMBER: PCT/GB95/00677
; FILING DATE: 27-MAR-1995
PRIOR APPLICATION DATA:
; APPLICATION NUMBER: GB 9405951.6
; FILING DATE: 25-MAR-1994
ATTORNEY/AGENT INFORMATION:
; NAME: Hohenschutz, Liza D.
; REGISTRATION NUMBER: 33,712
; REFERENCE/DOCKET NUMBER: PPD40027X/UST
TELECOMMUNICATION INFORMATION:
; TELEPHONE: (302) 886-1699
INFORMATION FOR SEQ ID NO: 17:
SEQUENCE CHARACTERISTICS:
; LENGTH: 77 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-716-308-17

Query Match   35.7%; Score 135; DB 2; Length 77;
Best Local Similarity 39.4%; Pred. No. 6.5e-08;
Matches 28; Conservative 10; Mismatches 27; Indels 6; Gaps 1;

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Qy   1  MKLTCVVIVAVLLTACQLITADDSRG-----TQKHRALRSDTKLSMSTRCKGTGKPCS  54
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Db   1  MKLTCMMIVAVLFLTAWTFATADDSSNGLENLFSKAHHEMKNPEASKLNKRCIEQPDPCE  60

Qy  55  RIAYNCCTGSC  65
        |:|| |   |
Db  61  MIRHCCVGVC  71
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RESULT 13
US-07-689-693B-7
; Sequence.7, Application US/0768969693B
; Patent No. 5231011
GENERAL INFORMATION:
; APPLICANT: David Hillyard
; APPLICANT: Baldomero M. Olivera
; TITLE OF INVENTION: Segregated Folding Determinants
; TITLE OF INVENTION: for Small Disulfide-Rich Peptides
; NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
; ADDRESSEE: Thorpe, No. 52310111th & Western
; STREET: 9035 South 700 East, Suite 200
; CITY: Sandy
; STATE: Utah
; COUNTRY: USA
; ZIP: 84070
COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.5 inch, 720 Kb storage
; COMPUTER: Compaq LTE/286
; OPERATING SYSTEM: DOS 4.01
; SOFTWARE: Word Perfect 5.1
CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/689,693B
; FILING DATE: 1991041B
; CLASSIFICATION: 530
PRIOR APPLICATION DATA:
; APPLICATION NUMBER: none
; FILING DATE: na
ATTORNEY/AGENT INFORMATION:
; NAME: Western, M. Wayne
; REGISTRATION NUMBER: 22,788
; REFERENCE/DOCKET NUMBER: 9925
TELECOMMUNICATION INFORMATION:
; TELEPHONE: (801) 566-6633
; TELEFAX: (801) 566-0750
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
; LENGTH: 77 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
FEATURE:
; NAME/KEY: Prepropeptide sequence for four loop
; NAME/KEY:
; IDENTIFICATION METHOD: Library was constructed
; IDENTIFICATION METHOD: using polyA selected mRNA transcripts purified
; IDENTIFICATION METHOD: from Conus textile venom duct tissue and cloned
; IDENTIFICATION METHOD: into the Okyama-Berg oligo-dT primed plasmid
; IDENTIFICATION METHOD: pSV7186.
US-07-689-693B-7

Query Match   35.4%; Score 134; DB 1; Length 77;
Best Local Similarity 39.4%; Pred. No. 8.4e-08;
Matches 28; Conservative 10; Mismatches 27; Indels 6; Gaps 1;

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Qy   1 MKLTCVVIVAVLLTACOLITADDSRG-----TOKHRALRSDTKLSMSTRCKGTGKPCS 54
       |||||:::|||||| ||| |||      :| | |||  :|| |||  || ||
Db   1 MKLTCHMIVAVLFLTAWTFATADDSGNGLENSFSKAHEMKNPEASKLNKRCIEQFDPCE 60

Qy  55 RIAYNCCTGSC 65
        | :| ||  |
Db  61 MIRHTCCVGVC 71
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RESULT 14
US-08-049-794-11
; Sequence 11, Application US/08049794
; Patent No. 5587454
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
;   ADDRESSEE: Law Offices of Peter Dehlinger
;   STREET: 350 Cambridge Avenue, Suite 300
;   CITY: Palo Alto
;   STATE: CA
;   ZIP: 94306
;   COUNTRY: USA
; COMPUTER READABLE FORM:
;   MEDIUM TYPE: Floppy disk
;   COMPUTER: IBM PC Compatible
;   OPERATING SYSTEM: PC-DOS/MS-DOS
;   SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
;   APPLICATION NUMBER: US/08/049,794
;   FILING DATE: 19930415
;   CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
;   APPLICATION NUMBER: US 07/814,759
;   FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
;   NAME: Stratford, Carol A.
;   REGISTRATION NUMBER: 34,444
;   REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
;   TELEPHONE: (415) 324-0880
;   TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 11:
;   SEQUENCE CHARACTERISTICS:
;   LENGTH: 26 amino acids
;   TYPE: AMINO ACID
;   TOPOLOGY: linear
;   MOLECULE TYPE: protein
;   HYPOTHETICAL: NO
;   ORIGINAL SOURCE:
;   INDIVIDUAL ISOLATE: SNX-193, FIGURE 2
US-08-049-794-11

Query Match   33.9%; Score 128; DB 1; Length 26;
Best Local Similarity   76.9%; Pred. No. 1.2e-07;
Matches   20; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy 46 CKGTGKPCSRIAYNCCTGSCRSGKCG 71
        ||| | ||| |:|||||||||||||
Db   1 CKGAGAKCSRLMYDCCTGSCRSGKCG 26

RESULT 15
US-08-496-847-11
; Sequence 11, Application US/08496847
; Patent No. 5795864
; GENERAL INFORMATION:

; APPLICANT: Amstutz, Gary A.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Gohil, Kishorchandra
; APPLICANT: Adriaenssens, Peter I.
; APPLICANT: Kristipati, Ramasharma
; TITLE OF INVENTION: METHODS AND
; TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN
; NUMBER OF SEQUENCES: 36
; CORRESPONDENCE ADDRESS:
;   ADDRESSEE: Dehlinger & Associates
;   STREET: 350 Cambridge Avenue, Suite 250
;   CITY: Palo Alto
;   STATE: CA
;   COUNTRY: US
;   ZIP: 94306-1546
; COMPUTER READABLE FORM:
;   MEDIUM TYPE: Diskette
;   COMPUTER: IBM Compatible
;   OPERATING SYSTEM: DOS
;   SOFTWARE: FastSEQ for Windows Version 2.0
; CURRENT APPLICATION DATA:
;   APPLICATION NUMBER: US/08/496,847
;   FILING DATE: 27-JUN-1995
;   CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
;   NAME: Stratford, Carol A
;   REGISTRATION NUMBER: 34,444
;   REFERENCE/DOCKET NUMBER: 5865-0009.31
; TELECOMMUNICATION INFORMATION:
;   TELEPHONE: 650-324-0880
;   TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 11:
;   SEQUENCE CHARACTERISTICS:
;   LENGTH: 26 amino acids
;   TYPE: amino acid
;   TOPOLOGY: linear
;   MOLECULE TYPE: protein
;   HYPOTHETICAL: NO
;   ORIGINAL SOURCE:
;   INDIVIDUAL ISOLATE: SNX-193, FIGURE 2
US-08-496-847-11

Query Match   33.9%; Score 128; DB 1; Length 26;
Best Local Similarity   76.9%; Pred. No. 1.2e-07;
Matches   20; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy 46 CKGTGKPCSRIAYNCCTGSCRSGKCG 71
        ||| | ||| |:|||||||||||||
Db   1 CKGAGAKCSRLMYDCCTGSCRSGKCG 26

Search completed: May 20, 2003, 15:42:41
Job time : 33.1042 secs
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OM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
Copyright (c) 1993 - 2003 Compugen Ltd.

Run on:              May 20, 2003, 15:41:00 ; Search time 51.0312 Seconds
                     (without alignments)
                     137.979 Million cell updates/sec

Title:               US-09-910-082A-190
Perfect score:       378
Sequence:            1 MKLTCVVIVAVLLTACQLI..........PCSRIAYNCCTGSCRSGKCG 71

Scoring table:       BLOSUM62
                     Gapop 10.0 , Gapext 0.5

Searched:            375593 seqs, 99172665 residues
Total number of hits satisfying chosen parameters:        375593

Post-processing:     Minimum Match 0%
                     Maximum Match 100%
Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Database :           Published_Applications_AA:*
                     Listing first 45 summaries

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2:  /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3:  /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
4:  /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
5:  /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
6:  /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
7:  /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
8:  /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
9:  /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

## SUMMARIES

| Result No. | Score | % Query Match Length | DB | ID | Description |
|---|---|---|---|---|---|
| 1 | 211.5 | 56.0 | 77 | 9 | US-09-749-637A-408 | Sequence 408, App |
| 2 | 152.5 | 40.3 | 76 | 9 | US-09-749-637A-207 | Sequence 207, App |
| 3 | 147 | 38.9 | 77 | 9 | US-09-749-637A-48 | Sequence 48, Appl |
| 4 | 143 | 37.8 | 77 | 9 | US-09-749-637A-294 | Sequence 294, App |
| 5 | 143 | 37.8 | 77 | 9 | US-09-749-637A-330 | Sequence 330, App |
| 6 | 142 | 37.6 | 77 | 9 | US-09-749-637A-42 | Sequence 42, Appl |
| 7 | 139 | 36.8 | 77 | 9 | US-09-749-637A-39 | Sequence 39, Appl |
| 8 | 139 | 36.8 | 80 | 9 | US-09-749-637A-86 | Sequence 86, Appl |
| 9 | 138.5 | 36.6 | 78 | 9 | US-09-749-637A-33 | Sequence 33, Appl |
| 10 | 138.5 | 36.6 | 78 | 9 | US-09-749-637A-26 | Sequence 26, Appl |
| 11 | 136 | 36.0 | 80 | 9 | US-09-749-637A-65 | Sequence 65, Appl |
| 12 | 135.5 | 35.8 | 78 | 9 | US-09-749-637A-22 | Sequence 22, Appl |
| 13 | 135.5 | 35.8 | 78 | 9 | US-09-749-637A-30 | Sequence 30, Appl |
| 14 | 134 | 35.4 | 76 | 9 | US-09-749-637A-321 | Sequence 321, App |
| 15 | 134 | 35.4 | 80 | 9 | US-09-749-637A-83 | Sequence 83, Appl |
| 16 | 131 | 34.7 | 76 | 9 | US-09-749-637A-80 | Sequence 80, Appl |
| 17 | 131 | 34.7 | 77 | 9 | US-09-749-637A-116 | Sequence 116, App |
| 18 | 130 | 34.4 | 95 | 9 | US-09-749-637A-264 | Sequence 264, App |
| 19 | 129.5 | 34.3 | 76 | 9 | US-09-749-637A-62 | Sequence 62, Appl |
| 20 | 129 | 34.1 | 77 | 9 | US-09-749-637A-71 | Sequence 71, Appl |
| 21 | 128 | 33.9 | 77 | 9 | US-09-749-637A-110 | Sequence 110, App |
| 22 | 127.5 | 33.7 | 82 | 9 | US-09-749-637A-291 | Sequence 291, App |
| 23 | 126 | 33.3 | 78 | 9 | US-09-749-637A-13 | Sequence 13, Appl |
| 24 | 126 | 33.3 | 81 | 9 | US-09-749-637A-152 | Sequence 152, App |
| 25 | 125 | 33.1 | 76 | 9 | US-09-749-637A-306 | Sequence 306, App |
| 26 | 125 | 33.1 | 78 | 9 | US-09-749-637A-122 | Sequence 122, App |
| 27 | 124 | 32.8 | 76 | 9 | US-09-749-637A-339 | Sequence 339, App |
| 28 | 124 | 32.8 | 80 | 9 | US-09-749-637A-56 | Sequence 56, Appl |
| 29 | 123 | 32.5 | 77 | 9 | US-09-749-637A-113 | Sequence 113, App |
| 30 | 121 | 32.0 | 75 | 9 | US-09-749-637A-36 | Sequence 36, Appl |
| 31 | 121 | 32.0 | 77 | 9 | US-09-749-637A-2 | Sequence 2, Appl1 |
| 32 | 121 | 32.0 | 77 | 9 | US-09-749-637A-77 | Sequence 77, Appl |
| 33 | 120 | 31.7 | 83 | 9 | US-09-749-637A-119 | Sequence 119, App |
| 34 | 120 | 31.7 | 77 | 9 | US-09-749-637A-167 | Sequence 167, App |
| 35 | 119 | 31.5 | 76 | 9 | US-09-749-637A-170 | Sequence 170, App |
| 36 | 119 | 31.5 | 81 | 9 | US-09-749-637A-333 | Sequence 333, App |
| 37 | 118 | 31.2 | 81 | 9 | US-09-749-637A-402 | Sequence 402, App |
| 38 | 118 | 31.2 | 78 | 9 | US-09-749-637A-399 | Sequence 399, App |
| 39 | 116 | 30.7 | 82 | 9 | US-09-749-637A-360 | Sequence 360, App |
| 40 | 116 | 30.7 | 82 | 9 | US-09-749-637A-390 | Sequence 390, App |
| 41 | 116 | 30.7 | 84 | 9 | US-09-749-637A-164 | Sequence 164, App |
| 42 | 116 | 30.7 | 76 | 9 | US-09-749-637A-74 | Sequence 74, Appl |
| 43 | 115.5 | 30.6 | 78 | 9 | US-09-749-637A-324 | Sequence 324, App |
| 44 | 115.5 | 30.6 | 97 | 9 | US-09-749-637A-19 | Sequence 19, Appl |
| 45 | 115 | 30.4 | 77 | 9 | US-09-749-637A-59 | Sequence 59, Appl |

## ALIGNMENTS

RESULT 1
US-09-749-637A-408
Sequence 408, Application US/09749637A
Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: Patentin version 3.0
;
; SEQ ID NO 408
; LENGTH: 77
; TYPE: PRT
; ORGANISM: Conus striolatus
;
US-09-749-637A-408

Query Match       56.0%;  Score 211.5;  DB 9;  Length 77;
Best Local Similarity   67.7%;  Pred. No. 1.5e-14;
Matches   44;  Conservative   3;  Mismatches   17;  Indels   1;  Gaps   1;

Qy    1  MKLTCVVIVAVLLTACQLITADDSRGTQKHRALRSDTKLSMSTRCKGTGKPCSRIAYNC 60
         ||||:|||||||||| |:||||||||||| |||||||  |:|| ||| |:||| |
Db    1  MKLTCMVIVAVLLTTCHLITADDSRGTQKHRSLRSTTKVSKSTSCMKAGSYCVATTRIC 60

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Qy    61 CTGSC 65
            |  |
Db    61 C-GYC 64
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RESULT 2
US-09-749-637A-207
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; Sequence 207, Application US/09749637A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 207
; LENGTH: 76
; TYPE: PRT
; ORGANISM: Conus distans
US-09-749-637A-207
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Query Match   40.3%;   Score 152.5;   DB 9;   Length 76;
Best Local Similarity   48.6%;   Pred. No. 1.3e-08;
Matches   36;   Conservative 12;   Mismatches 21;   Indels   5;   Gaps   4;

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Db    1  MKLTCMLIIAVLFLTACQLSTNASYARSKQKHRVLRSTDKNSKLTQRCNEAQEHCTQNP-  59

Qy    59 NCCTGSCRS--GKC 70
         :||| || || |:|
Db    60 DCCSESCNKFVGRC 73
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RESULT 3
US-09-749-637A-48
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; Sequence 48, Application US/09749637A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 48
; LENGTH: 77
; TYPE: PRT
; ORGANISM: Conus magus
US-09-749-637A-48
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Query Match   38.9%;   Score 147;   DB 9;   Length 77;
Best Local Similarity   43.7%;   Pred. No. 4.7e-08;
Matches   31;   Conservative 9;   Mismatches 25;   Indels   9;   Gaps   2;

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Qy    1  MKLTCVVIVAVLLITACQLITADDS-RGTQK----HRALRSDIKLSMSTRCKGTGKPCS 54
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Db    1  MKLTCVMIVAVLFLTVWTFATADDSGNGLEKLFSNAHHEMKNPEASKLNKRCKQADEPCD 60

Qy    55 RIAYNCCTGSC 65
         |||| | |
Db    61 VFSLECCTGIC 71
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RESULT 4
US-09-749-637A-294
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; Sequence 294, Application US/09749637A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 294
; LENGTH: 77
; TYPE: PRT
; ORGANISM: Conus marmoreus
US-09-749-637A-294
```

Query Match   37.8%;   Score 143;   DB 9;   Length 77;
Best Local Similarity   42.3%;   Pred. No. 1.2e-07;
Matches   30;   Conservative 9;   Mismatches 26;   Indels   6;   Gaps   1;

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Qy    1  MKLTCVVIVAVLLITACQLITADDSRG--------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
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Db    1  MKLTCVVIVAVLFLTAWFFATADDPRNGLENLFSKAHHEMKNPEASKLNKRCPNTGELCD 60

Qy    55 RIAYNCCTGSC 65
         |||| | |
Db    61 VVEQNCCIYIC 71
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RESULT 5
US-09-749-637A-330
; Sequence 330, Application US/09749637A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 330
; LENGTH: 77
; TYPE: PRT
; ORGANISM: Conus lividus
US-09-749-637A-330

Query Match   37.8%;   Score 143;   DB 9;   Length 77;
Best Local Similarity   42.3%;   Pred. No. 1.2e-07;
Matches   30; Conservative   9; Mismatches   26; Indels   6; Gaps   1;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRG------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
         |||||||||||||||| |||| | |:|||| | | || | | | ||| |
Db   1 MKLTCVVIAVLFLTAWTFATADDPRNGLENLFSKAHHEMKNPEASKLNKRCPNTGELCD 60

Qy   55 RIAYNCCTGSC 65
         |||| | ||
Db   61 VVEQNCCVTYC 71

RESULT 6
US-09-749-637A-42
; Sequence 42, Application US/09749637A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30

; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 42
; LENGTH: 77
; TYPE: PRT
; ORGANISM: Conus gloriamaris
US-09-749-637A-42

Query Match   37.6%;   Score 142;   DB 9;   Length 77;
Best Local Similarity   42.3%;   Pred. No. 1.5e-07;
Matches   30; Conservative   12; Mismatches   23; Indels   6; Gaps   2;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSR-GTQK-----HRALRSDTKLSMSTRCKGTGKPCS 54
         |||||:|||||||| |||| | | | |:| | | || | || | | | ||| |
Db   1 MKLTCMIVAVLFLTAWTFATADDPRNGLEKLFSNTHHEMKNPEASKLNKRCKQADESCN 60

Qy   55 RIAYNCCTGSC 65
         |||| | ||
Db   61 VFSLDCCTGLC 71

RESULT 7
US-09-749-637A-39
; Sequence 39, Application US/09749637A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 39
; LENGTH: 77
; TYPE: PRT
; ORGANISM: Conus gloriamaris
US-09-749-637A-39

Query Match   36.8%;   Score 139;   DB 9;   Length 77;
Best Local Similarity   39.4%;   Pred. No. 3e-07;
Matches   28; Conservative   12; Mismatches   25; Indels   6; Gaps   1;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRG------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
         |||||:|||||||| |||| | | | | | || | || | || | | | ||| |
Db   1 MKLTCMIVAVLFLTAWTFATADDPRNGLGNIFSNAHHEMKNPEASKLNKRCRLGAESCD 60

Qy   55 RIAYNCCTGSC 65
         |||| | ||
Db   61 VISQNCCQGTC 71

RESULT 8
US-09-749-637A-86
; Sequence 86, Application US/09749637A
; Patent No. US20020173449A1
; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: PatentIn version 3.0
;
; SEQ ID NO 86
; LENGTH: 80
; TYPE: PRT
; ORGANISM: Conus pennaceus
US-09-749-637A-86

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRG---------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
        |||||::|||:||||||| |||:   ::: | ||| :|| |
Db   1 MKLICLMIVAVLFLTAWTFATADDPRNGLENFFSKTQHEMKNPEASKLNKRCKAESEACN 60

Qy 55 RIAYNCCTGSC 65
        | ||| | |
Db 61 IITQNCCDGKC 71

Query Match   36.8%;   Score 139; DB 9;   Length 80;
Best Local Similarity   39.4%;   Pred. No. 3.1e-07;
Matches   28; Conservative 11; Mismatches 26; Indels   6; Gaps   1;

RESULT 9
US-09-749-637A-26
; Sequence 26, Application US/09749637A
; Patent No. US2002017344941
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: PatentIn version 3.0
;
; SEQ ID NO 26
; LENGTH: 78
; TYPE: PRT

; ORGANISM: Conus magus
US-09-749-637A-26

Query Match   36.6%;   Score 138.5; DB 9;   Length 78;
Best Local Similarity   41.7%;   Pred. No. 3.4e-07;
Matches   30; Conservative 11; Mismatches 24; Indels   7; Gaps   2;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRG---------TQKHRALRSDTKLSMSTR-CKGTGKPC 53
        |||||::|||:||||||| |||:   ::: | ||| :|| |
Db   1 MKLTCVMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKKQSGEMC 60

Qy 54 SRIAYNCCTGSC 65
        : | ||| | |
Db 61 NLLDQNCCDGYC 72

RESULT 10
US-09-749-637A-33
; Sequence 33, Application US/09749637A
; Patent No. US2002017344941
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: PatentIn version 3.0
;
; SEQ ID NO 33
; LENGTH: 78
; TYPE: PRT
; ORGANISM: Conus ammiralis
US-09-749-637A-33

Query Match   36.6%;   Score 138.5; DB 9;   Length 78;
Best Local Similarity   41.7%;   Pred. No. 3.4e-07;
Matches   30; Conservative 11; Mismatches 24; Indels   7; Gaps   2;

Qy   1 MKLTCVVIVAVLLLTACQLITADDSRG---------TQKHRALRSDTKLSMSTR-CKGTGKPC 53
        |||||::|||:||||||| |||:   ::: | ||| :|| |
Db   1 MKLTCVMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKKQSGEMC 60

Qy 54 SRIAYNCCTGSC 65
        : | ||| | |
Db 61 NLLDQNCCEGYC 72

RESULT 11
US-09-749-637A-65
; Sequence 65, Application US/09749637A
; Patent No. US2002017344941
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren

; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US/09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 65
; LENGTH: 80
; TYPE: PRT
; ORGANISM: Conus aulicus

US-09-749-637A-65

Query Match   36.0%; Score 136; DB 9; Length 80;
Best Local Similarity 39.4%; Pred. No. 6.2e-07;
Matches 28; Conservative 11; Mismatches 26; Indels 6; Gaps 1;

Qy 1 MKLTCVVIVAVLLLTACQLITADDSRG-------TQKHRALRSDTKLSMSTRCKGTGKPCS 54
       |||||:|||||| ||| | | ::: :||||| | ||:|:|
Db 1 MKLTCMIVAVLFLTAWTFATADDPRNGLENLFSKTQHKMKNPEASKLNKRCKAENELCN 60

Qy 55 RIAYNCCTGSC 65
       ::|||| |||
Db 61 IFIQNCCDGTC 71

RESULT 12
US-09-749-637A-22
; Sequence 22, Application US/0974963 7A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US-09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 22
; LENGTH: 78
; TYPE: PRT
; ORGANISM: Conus textile

US-09-749-637A-22

Matches 29; Conservative 12; Mismatches 24; Indels 7; Gaps 2;

Qy 1 MKLTCVVIVAVLLLTACQLITADDSRG-------TQKHRALRSDTKLSMSTR-CKGTGKPC 53
       |||||:|||||| ||| | | ::: :||||| | ::: :|
Db 1 MKLTCMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC 60

Qy 54 SRIAYNCCTGSC 65
       ::|||| |||
Db 61 NLLDQNCCDGYC 72

RESULT 13
US-09-749-637A-30
; Sequence 30, Application US/0974963 7A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
; FILE REFERENCE: 2314-227
; CURRENT APPLICATION NUMBER: US-09/749,637A
; CURRENT FILING DATE: 2000-12-28
; PRIOR APPLICATION NUMBER: US 60/214,263
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US60/219,440
; PRIOR FILING DATE: 2000-10-27
; PRIOR APPLICATION NUMBER: US 60/243,412
; PRIOR FILING DATE: 2000-06-26
; PRIOR APPLICATION NUMBER: US 60/173,754
; PRIOR FILING DATE: 1999-12-30
; NUMBER OF SEQ ID NOS: 409
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 30
; LENGTH: 78
; TYPE: PRT
; ORGANISM: Conus distans

US-09-749-637A-30

Query Match   35.88%; Score 135.5; DB 9; Length 78;
Best Local Similarity 40.3%; Pred. No. 6.8e-07;
Matches 29; Conservative 12; Mismatches 24; Indels 7; Gaps 2;

Qy 1 MKLTCVVIVAVLLLTACQLITADDSRG-------TQKHRALRSDTKLSMSTR-CKGTGKPC 53
       |||||:|||||| ||| | | ::: :||||| | | :::
Db 1 MKLTCMIVAVLFLTAWTFATADDPRNGLGNLFSNAHHEMKNPEASKLNKRWCKQSGEMC 60

Qy 54 SRIAYNCCTGSC 65
       ::|||| |||
Db 61 NLLDQNCCDGYC 72

RESULT 14
US-09-749-637A-321
; Sequence 321, Application US/0974963 7A
; Patent No. US20020173449A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cartier, G. Edward
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Layer, Richard T.
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: O-Superfamily Conotoxin Peptides

```
Qy    55  RIAYNCCTGSC 65
          :  |  ||| |
Db    61  MVRHTCCKGLC 71

Search completed: May 20, 2003, 15:53:51
Job time : 52.0312 secs
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FILE REFERENCE: 2314-227
CURRENT APPLICATION NUMBER:: US/09/749,637A
CURRENT FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/243,412
PRIOR APPLICATION FILING DATE: 2000-10-27
PRIOR APPLICATION NUMBER: US60/219,440
PRIOR APPLICATION FILING DATE: 2000-07-20
PRIOR APPLICATION NUMBER: US 60/214,263
PRIOR APPLICATION FILING DATE: 2000-06-26
PRIOR APPLICATION NUMBER: US 60/173,754
PRIOR APPLICATION FILING DATE: 1999-12-30
NUMBER OF SEQ ID NOS: 409
SOFTWARE: Patentin version 3.0
SEQ ID NO 321
  LENGTH: 76
  TYPE: PRT
  ORGANISM: Conus caracteristicus
US-09-749-637A-321

Query Match         35.4%;  Score 134;  DB 9;  Length 76;
Best Local Similarity    42.3%;  Pred. No. 9.4e-07;
Matches   30;  Conservative   9;  Mismatches   26;  Indels   6;  Gaps   1;

Qy     1  MKLTCVVIVAVLLLTACQLITADDSRG------TQKHRALRSDTIKLSMSTRCKGTGKPCS 54
          ||||||||||||| |||   :|||||              ::  || |:|
Db     1  MKLTCVVIVAVLFLTAWTFVTADDSRNGLENLFPKARHEMKNPEASKLNKRCVDPGEFCG 60

Qy    55  RIAYNCCTGSC 65
          : |||| |
Db    61  PGFGDCCTGFC 71
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RESULT 15
US-09-749-637A-83
Sequence 83, Application US/09749637A
Patent No. US20020173449A1
GENERAL INFORMATION:
  APPLICANT: University of Utah Research Foundation
  APPLICANT: Cognetix, Inc.
  APPLICANT: Olivera, Baldomero M.
  APPLICANT: Cartier, G. Edward
  APPLICANT: Watkins, Maren
  APPLICANT: Hillyard, David R.
  APPLICANT: McIntosh, J. Michael
  APPLICANT: Layer, Richard T.
  APPLICANT: Jones, Robert M.
  TITLE OF INVENTION: O-Superfamily Conotoxin Peptides
  FILE REFERENCE: 2314-227
  CURRENT APPLICATION NUMBER: US/09/749,637A
  CURRENT FILING DATE: 2000-12-28
  PRIOR APPLICATION NUMBER: US 60/243,412
  PRIOR APPLICATION FILING DATE: 2000-10-27
  PRIOR APPLICATION NUMBER: US60/219,440
  PRIOR APPLICATION FILING DATE: 2000-07-20
  PRIOR APPLICATION NUMBER: US 60/214,263
  PRIOR APPLICATION FILING DATE: 2000-06-26
  PRIOR APPLICATION NUMBER: US 60/173,754
  PRIOR APPLICATION FILING DATE: 1999-12-30
  NUMBER OF SEQ ID NOS: 409
  SOFTWARE: Patentin version 3.0
  SEQ ID NO 83
    LENGTH: 80
    TYPE: PRT
    ORGANISM: Conus Pennaceus
US-09-749-637A-83

Query Match         35.4%;  Score 134;  DB 9;  Length 80;
Best Local Similarity    38.0%;  Pred. No. 9.9e-07;
Matches   27;  Conservative   11;  Mismatches   27;  Indels   6;  Gaps   1;

Qy     1  MKLTCVVIVAVLLLTACQLITADDSRG-----TQKHRALRSDTKLSMSTRCKGTGKPCS 54
          ||||| ||||:::|||| ||| |||         :| |  || :||
Db     1  MKLTCVMLVAVLFLTAWTFATADDSSNGLENLFSKAHHEMKNPEASKLNKRCIPQFDPCD 60
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OM protein - protein search, using sw model

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                        GenCore version 5.1.4_p5_4578
                        Copyright (c) 1993 - 2003 Compugen Ltd.

Run on:        May 20, 2003, 15:32:50 ; Search time 27.0833 Seconds
                                        (without alignments)
                                        190.197 Million cell updates/sec

Title:         US-09-910-082A-375
Perfect score: 153
Sequence:      1 CKGTGKPCSRIAYNCCTGSCRSGKC 25

Scoring table: BLOSUM62
               Gapop 10.0 , Gapext 0.5

Searched:      671580 seqs, 20604715 residues

Total number of hits satisfying chosen parameters:      671580

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Database :     SPTREMBL_21:*
               1:  sp_archea:*
               2:  sp_bacteria:*
               3:  sp_fungi:*
               4:  sp_human:*
               5:  sp_invertebrate:*
               6:  sp_mammal:*
               7:  sp_mhc:*
               8:  sp_organelle:*
               9:  sp_phage:*
               10: sp_plant:*
               11: sp_rodent:*
               12: sp_virus:*
               13: sp_vertebrate:*
               14: sp_unclassified:*
               15: sp_rvirus:*
               16: sp_bacteriap:*
               17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.
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SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	142	92.8	66	5	Q9NCV3	conus stria
2	142	92.8	66	5	Q9NCV2	conus stria
3	142	100	66	5	Q9N6F7	conus stria
4	134	87.6	66	5	Q9N6N6	conus stria
5	134	87.6	66	5	Q9NCV4	conus stria
6	134	87.6	66	5	Q9NCV0	conus stria
7	134	87.6	66	5	Q9NCU1	conus stria
8	112	73.2	66	5	Q9N633	conus stria
9	112	73.2	66	5	Q9N628	conus catus
10	112	73.2	66	5	Q9N628	conus catus
11	112	73.2	66	5	Q9N625	conus catus
12	112	73.2	66	5	Q9NCW6	conus catus
13	112	73.2	66	5	Q9NCW3	conus catus
14	112	73.2	66	5	Q9NCW4	conus catus
15	111	72.5	66	5	Q9NCW2	conus catus
16	110	71.9	66	5	Q9NCW1	conus catus

17	108	70.6	66	5	Q9NCV5	conus catus
18	105	68.6	66	5	Q9NCV7	conus catus
19	104	68.0	66	5	Q9N6F7	conus catus
20	100	65.4	66	5	Q9NCV6	conus catus
21	94	61.4	66	5	Q9N6F8	conus catus
22	94	61.4	66	5	Q9NCW0	conus catus
23	94	61.4	66	5	Q9NCV9	conus catus
24	85	55.6	66	5	Q9NCV8	conus catus
25	66	43.1	66	5	Q9NCV8	conus catus
25	66	43.1	2664	5	026033	plasmodium
26	62.5	40.8	77	5	026033	plasmodium
27	62.5	40.8	77	5	Q9U653	conus textl
28	61.5	40.2	50	12	Q8QLC7	mamestra co
29	61	39.9	78	5	Q9U656	conus textl
30	61	39.9	78	5	Q9U655	conus textl
31	61	39.9	80	5	Q9U660	conus penna
32	60.5	39.5	139	3	012492	saccharomyc
33	60	39.2	67	5	Q9N604	conus stria
34	60	39.2	67	5	Q9NCU6	conus stria
35	60	39.2	67	5	Q9NCU3	conus stria
36	60	39.2	67	5	Q9NCU2	conus stria
37	59.5	38.9	73	5	Q9BPB4	conus textl
38	59	38.6	73	5	Q9NCU5	conus stria
39	59	38.6	72	5	Q9NCU5	conus stria
40	59	38.6	72	5	Q9XZL5	conus stria
40	59	38.6	2150	5	044131	caenorhabdi
41	58.5	38.2	52	12	Q9PYR8	archaeoglob
42	58	37.9	72	5	Q9XZL4	xestia c-n1
43	58	37.9	17	5	028331	archaeoglob
44	57.5	37.6	73	5	Q9BPB2	conus textl
45	57.5	37.6	1329	5	Q9BMB0	caenorhabdi
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ALIGNMENTS

RESULT 1
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ID       Q9NCV3
AC       Q9NCV3;                           PRELIMINARY;      PRT;      66 AA.
DT       01-OCT-2000 (TrEMBLrel. 15, Created)
DT       01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT       01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE       Four-loop conotoxin (Fragment).
OS       Conus striatus (Striated cone).
OC       Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC       Neogastropoda; Conoidea; Conidae; Conus.
OX       NCBI_TaxID=6493;
RN       [1]
RP       SEQUENCE FROM N.A.
RC       STRAIN=STRH_1_3;
RA       Duda T.F., Palumbi S.R.;
RT       "Molecular evolution of four-loop conotoxin precursors from fish-
RT       eating Conus.";
RL       Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR       EMBL; AF174242; AAF69906.1; -.
DR       HSSP; P05484; 1MVI.
DR       InterPro; IPR004214; Conotoxin.
DR       Pfam; PF02950; Conotoxin; 1.
FT       NON_TER       1       1
SQ       SEQUENCE       66 AA;       7019 MW;       89B89B7AF1A7C7B3 CRC64;

Query Match             92.8%;      Score 142;      DB 5;      Length 66;
Best Local Similarity   92.0%;      Pred   No. 7.2e-14;
Matches    23;      Conservative    0;      Mismatches    2;      Indels    0;      Gaps    0;

Qy         1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
             ||||||||||||||||||||||||||
Db        41 CKGTGKPCSRIAYNCCTGSCRSGKC 65
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RESULT 2
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ID       Q9NCV2
AC       Q9NCV2;                           PRELIMINARY;      PRT;      66 AA.
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DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_4;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174243; AAF89907.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1   1
SQ   SEQUENCE   66 AA; 7033 MW; 887E401681A7C7B3 CRC64;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              |||||| |||||||||||||||||||
Db   41 CKAAGKPCSRIAYNCCTGSCRSGKC 65

Query Match   92.8%; Score 142; DB 5; Length 66;
Best Local Similarity   92.0%; Pred. No. 7.2e-14;
Matches   23; Conservative   0; Mismatches   2; Indels   0; Gaps   0;

RESULT 3
Q9NCV1
ID   Q9NCV1   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCV1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_6;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174245; AAF89909.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1   1
SQ   SEQUENCE   66 AA; 6976 MW; 29A92736137DA05 CRC64;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              |||||| |||||||||||||||||||
Db   41 CKAAGKPCSRIAYNCCTGSCRSGKC 65

Query Match   92.8%; Score 142; DB 5; Length 66;
Best Local Similarity   92.0%; Pred. No. 7.2e-14;
Matches   23; Conservative   0; Mismatches   2; Indels   0; Gaps   0;

RESULT 4
Q9N6N6
ID   Q9N6N6   PRELIMINARY;   PRT;   66 AA.
AC   Q9N6N6;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).

DE   Four-loop conotoxin precursor (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_5, AND CSTRH_1_1;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174244; AAF89908.1; -.
DR   EMBL; AF174240; AAF89904.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1   1
SQ   SEQUENCE   66 AA; 6966 MW; 29A92710CA7DA05 CRC64;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              |||||| ||||||||||||||||||||
Db   41 CKAAGKSCSRIAYNCCTGSCRSGKC 65

Query Match   87.6%; Score 134; DB 5; Length 66;
Best Local Similarity   88.0%; Pred. No. 1.1e-12;
Matches   22; Conservative   0; Mismatches   3; Indels   0; Gaps   0;

RESULT 5
Q9NCV4
ID   Q9NCV4   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCV4;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_2;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174241; AAF89905.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1   1
SQ   SEQUENCE   66 AA; 6980 MW; 286F491D7CA7DA05 CRC64;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              |||||| ||||||||||||||||||||
Db   41 CKAAGKSCSRIAYNCCTGSCRSGKC 65

Query Match   87.6%; Score 134; DB 5; Length 66;
Best Local Similarity   88.0%; Pred. No. 1.1e-12;
Matches   22; Conservative   0; Mismatches   3; Indels   0; Gaps   0;

RESULT 6
Q9NCV0
ID   Q9NCV0   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCV0;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).

```
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_1_7;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174246; AAF89910.1; -.
DR   EMBL; AF174215; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  6981 MW;  20CDC3307CA7DA05 CRC64;

Query Match             87.6%;
Best Local Similarity   88.0%;   Pred. No. 1.1e-12;   Score 134;  DB 5;  Length 66;
Matches  22;   Conservative   0;   Mismatches   3;   Indels   0;   Gaps     0;

Qy          1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              || |||||||||||||||||
Db         41 CKAAGKSCSRIAYNCCTGSCRSGKC 65
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RESULT 7
Q9NCU1

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ID   Q9NCU1      PRELIMINARY;      PRT;    66 AA.
AC   Q9NCU1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CSTRH_R_1;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174267; AAF89931.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  6951 MW;  0D98688C0A7A1A39F CRC64;

Query Match             88.0%;
Best Local Similarity   88.0%;   Score 134;  DB 5;  Length 66;
Matches  22;   Conservative   0;   Mismatches   3;   Indels   0;   Gaps     0;

Qy          1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              || |||||||||||||||||
Db         41 CKAAGKSCSRIAYNCCTGSCRSGKC 65
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RESULT 8
Q9N633

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ID   Q9N633      PRELIMINARY;      PRT;    66 AA.
AC   Q9N633;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
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RESULT 9
Q9N628

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ID   Q9N628      PRELIMINARY;      PRT;    66 AA.
AC   Q9N628;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_II_6, CCATH_II_1, AND CCATH_II_2;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174219; AAF89883.1; -.
DR   EMBL; AF174214; AAF89878.1; -.
DR   EMBL; AF174215; AAF89879.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  7053 MW;  E445338A6968A1AC CRC64;

Query Match             73.2%;
Best Local Similarity   68.0%;   Pred. No. 2e-09;   Score 112;  DB 5;  Length 66;
Matches  17;   Conservative   3;   Mismatches   5;   Indels   0;   Gaps     0;

Qy          1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              ||| | |  :.:||||||||||:|
Db         41 CKGKGASCRRTSYDCCTGSCRSGRC 65
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RESULT 10
Q9N625

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ID   Q9N625      PRELIMINARY;      PRT;    66 AA.
AC   Q9N625;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin precursor (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_III_9, AND CCATH_III_6;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174229; AAF89893.1; -.
DR   EMBL; AF174226; AAF89890.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   66 AA;  7057 MW;  E7AA5E310968B7DA CRC64;

Query Match             73.2%;
Best Local Similarity   68.0%;   Pred. No. 2e-09;   Score 112;  DB 5;  Length 66;
Matches  17;   Conservative   3;   Mismatches   5;   Indels   0;   Gaps     0;

Qy          1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              ||| | |  :.:||||||||||:|
Db         41 CKSTGASCRRTSYDCCTGSCRSGRC 65
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RESULT 11
Q9NCW6
ID   Q9NCW6   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCW6;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_II_3;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174216; AAF89880.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1   1
SQ   SEQUENCE   66 AA; 7023 MW; E445339B6968B0AC CRC64;

Query Match   73.2%; Score 112; DB 5; Length 66;
Best Local Similarity 68.0%; Pred. No. 2e-09;
Matches   17; Conservative   3; Mismatches   5; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              ||| | | :|:|||||||||||:|
Db   41 CKSTGASCRRTSYDCCTGSCRSGRC 65

RESULT 12
Q9NCW5
ID   Q9NCW5   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCW5;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conus.

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              ||| || ||:||||||||||||:|
Db   41 CKGKGASCRRTSYDCCTGSCRSGRC 65

RESULT 13
Q9NCW3
ID   Q9NCW3   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCW3;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CCATH_II_7;
RA   Duda T.F., Palumbi S.R.;
RT   "Molecular evolution of four-loop conotoxin precursors from fish-
RT   eating Conus.";
RL   Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF174220; AAF89884.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
FT   NON_TER   1   1
SQ   SEQUENCE   66 AA; 7054 MW; E9FE5E310968A1AC CRC64;

Query Match   73.2%; Score 112; DB 5; Length 66;
Best Local Similarity 68.0%; Pred. No. 2e-09;
Matches   17; Conservative   3; Mismatches   5; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              ||| | | :|:|||||||||||:|
Db   41 CKGKGASCRRTSYDCCTGSCRSGRC 65

RESULT 14
Q9NCW2
ID   Q9NCW2   PRELIMINARY;   PRT;   66 AA.
AC   Q9NCW2;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Four-loop conotoxin (Fragment).
OS   Conus catus.
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A.

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RC     STRAIN=CCATH_1II_3;
RA     Duda T.F., Palumbi S.R.;
RT     "Molecular evolution of four-loop conotoxin precursors from fish-
RT     eating Conus.";
RL     Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR     EMBL; AF174223; AAF89887.1; -.
DR     HSSP; P05484; 1MVI.
DR     InterPro; IPR004214; Conotoxin.
DR     Pfam; PF02950; Conotoxin; 1.
FT     NON_TER           1
SQ     SEQUENCE   66 AA;   7026 MW;   EA11339E382DB7DA CRC64;

Qy         1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
             ||| | | :|||||||||||||:::|
Db        41 CKSTGASCRRTSYDCCTGSCRSGRC 65

Query Match             73.2%;  Score 112; DB 5; Length 66;
Best Local Similarity   68.0%;  Pred. No. 2e-09;
Matches    17;  Conservative    3;  Mismatches   5;  Indels   0;  Gaps   0;


RESULT 15
ID     Q9NCW4
AC     Q9NCW4;
ID     Q9NCW4            PRELIMINARY;        PRT;        66 AA.
AC     Q9NCW4;
DT     01-OCT-2000 (TrEMBLrel. 15, Created)
DT     01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT     01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE     Four-loop conotoxin (Fragment).
OS     Conus catus.
OC     Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC     Neogastropoda; Conoidea; Conidae; Conus.
OX     NCBI_TaxID=101291;
RN     [1]
RP     SEQUENCE FROM N.A.
RC     STRAIN=CCATH_1I_5;
RA     Duda T.F., Palumbi S.R.;
RT     "Molecular evolution of four-loop conotoxin precursors from fish-
RT     eating Conus.";
RL     Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.
DR     EMBL; AF174218; AAF89882.1; -.
DR     HSSP; P05484; 1MVI.
DR     InterPro; IPR004214; Conotoxin.
DR     Pfam; PF02950; Conotoxin; 1.
FT     NON_TER           1
SQ     SEQUENCE   66 AA;   6995 MW;   E445338A6AA7A1AC CRC64;

Qy         1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
             ||| | | :|||||||||||||:::|
Db        41 CKGKGASCRRTSYGCCTGSCRSGRC 65

Query Match             72.5%;  Score 111; DB 5; Length 66;
Best Local Similarity   68.0%;  Pred. No. 2.8e-09;
Matches    17;  Conservative    2;  Mismatches   6;  Indels   0;  Gaps   0;
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OM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
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Run on: May 20, 2003, 15:22:55 ; Search time 27.3438 Seconds
             (without alignments)
             121.829 Million cell updates/sec

Title: US-09-910-082A-375
Perfect score: 153
Sequence: 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25

Scoring table: BLOSUM62
             Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 08
             Maximum Match 100%
             Listing first 45 summaries

Database :   A_Geneseq_101002:*
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   13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
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   19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
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   21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
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   23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

SUMMARIES

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

Result No.	Score	% Query Match	Length	DB	ID	Description
1	153	100.0	25	23	ABB96833	Omega-conopeptide
2	153	100.0	25	23	ABB96867	Omega-conopeptide
3	153	100.0	71	23	ABB96629	Omega-conopeptide
4	153	100.0	71	23	ABB96657	Omega-conopeptide
5	152	99.3	25	23	ABB96838	Omega-conopeptide
6	152	99.3	71	23	ABB96634	Omega-conopeptide
7	144	94.1	25	23	ABB96815	Omega-conopeptide
8	144	94.1	71	23	ABB96607	Omega-conopeptide
9	142	92.8	25	21	AAY87540	Mature conotoxin P
10	142	92.8	71	21	AAY87541	Conotoxin peptide

ALIGNMENTS

RESULT 1
ABB96833

ID   ABB96833 standard; Peptide; 25 AA.
XX
AC   ABB96833;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Cn6.2 toxin sequence.
XX
OS   Conus consors.
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PR
PR
XX
KW   psychosis; anxiety; schizophrenia.
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;

11	141	92.2	25	23	ABB96817	Omega-conopeptide
12	141	92.2	71	23	ABB96609	Omega-conopeptide
13	139	90.8	25	23	ABB96870	Omega-conopeptide
14	139	90.8	71	23	ABB96661	Omega-conopeptide
15	136	88.9	25	23	ABB96763	Omega-conopeptide
16	135	88.2	25	23	ABB96737	Omega-conopeptide
17	134	87.6	25	23	ABB96888	Omega-conopeptide
18	134	87.6	71	23	ABB96680	Omega-conopeptide
19	131	85.6	25	23	ABB96767	Omega-conopeptide
20	131	85.6	25	23	ABB96732	Omega-conopeptide
21	127	83.0	25	23	ABB96710	Omega-conopeptide
22	126	82.4	25	18	AAW19568	SNX-273, omega con
23	126	82.4	25	22	AAB97041	Omega-conch toxin
24	126	82.4	25	23	ABB96787	Omega-conopeptide
25	124	81.0	25	23	ABB96712	Omega-conopeptide
26	123	80.4	25	23	AAW12978	Omega conopeptide
27	123	80.4	25	19	AAW72618	Conus genus analog
28	123	80.4	25	20	AAW95577	Analog omega-conop
29	123	80.4	25	21	AAW14363	Analog omega-conop
30	123	80.4	25	22	AAB19455	Sequence of an ome
31	122	79.7	25	12	AAB12544	Omega conotoxin pe
32	122	79.7	25	14	AAR37763	Omega conotoxin pe
33	122	79.7	25	14	AAR37766	SNX-190. Syntheti
34	122	79.7	25	14	AAR39618	SNX-194. Syntheti
35	122	79.7	25	14	AAR39621	SNX-190. Syntheti
36	122	79.7	25	18	AAW19555	SNX-194, omega con
37	122	79.7	25	18	AAW19558	SNX-194, omega con
38	122	79.7	25	18	AAW12975	Omega conopeptide
39	122	79.7	25	12	AAW12983	Omega conopeptide
40	122	79.7	25	19	AAW72615	Conus genus analog
41	122	79.7	25	19	AAW72623	Conus genus analog
42	122	79.7	25	20	AAW95582	Analog omega-conop
43	122	79.7	25	20	AAW95574	Analog omega-conop
44	122	79.7	25	21	AAB14360	Omega conopeptide
45	122	79.7	25	21	AAB14368	Omega-conopeptide

Left column

```
XX
PI   Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(a); Page 71; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96807-ABB96905 represent omega-conopeptide toxin sequences.
XX
SQ   Sequence   25 AA;

Query Match             100.0%;  Score 153;  DB 23;  Length 25;
Best Local Similarity   100.0%;  Pred. No. 1.6e-10;
  Matches   25;  Conservative   0;  Mismatches   0;  Indels   0;  Gaps   0;

Qy          1  CKGTGKPCSRIAYNCCTGSCRSGKC 25
               |||||||||||||||||||||||||
Db          1  CKGTGKPCSRIAYNCCTGSCRSGKC 25


RESULT 2
ID   ABB96867 standard; Peptide; 25 AA.
AC   ABB96867;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide M6.1 toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus magus.
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
```

Right column

```
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(a); Page 72; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96807-ABB96905 represent omega-conopeptide toxin sequences.
XX
SQ   Sequence   25 AA;

Query Match             100.0%;  Score 153;  DB 23;  Length 25;
Best Local Similarity   100.0%;  Pred. No. 1.6e-10;
  Matches   25;  Conservative   0;  Mismatches   0;  Indels   0;  Gaps   0;

Qy          1  CKGTGKPCSRIAYNCCTGSCRSGKC 25
               |||||||||||||||||||||||||
Db          1  CKGTGKPCSRIAYNCCTGSCRSGKC 25


RESULT 3
ID   ABB96629 standard; Peptide; 71 AA.
AC   ABB96629;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide Cn6.2 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus consors.
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
```

Column 1

PR   05-FEB-2001; 2001US-265888P.
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN) COGNETIX INC.
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98888.
PN
PS   Claim 1(c); Page 38; 195pp; English.

The invention relates to isolated omega-conopeptides, nucleic acid
sequences encoding them, and propeptide sequences. The activity of
the peptides of the invention may be described as, analgesic,
anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
cardiovascular, antiinflammatory, antimigraine, antidiabetic,
tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
Peptides of the invention act by modulating the activity of voltage gated
ion channels. They may be used for treating or preventing disorders
associated with voltage gated ion channels such as neurological
disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
associated with conditions of hypoxia, anoxia, ischaemia, stroke,
cerebrovascular accident, brain or spinal chord trauma, drowning,
suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
migraine; inflammation or cardiovascular disorders. They may also be used
for treating psychiatric disorders e.g. psychosis, anxiety or
schizophrenia. The analgesic agents of the invention show diminished side
effects and toxicity, and are non-addictive. The sequences given in
records ABB96595-ABB96697 represent omega-conopeptide propeptide
sequences.

SQ   Sequence   71 AA;

Query Match   100.0%;
Best Local Similarity   100.0%;
Matches   25;   Conservative   0;   Mismatches   0;   Indels   0;   Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
      ||||||||||||||||||||||||||
Db   46 CKGTGKPCSRIAYNCCTGSCRSGKC 70

Score 153;   DB 23;   Length 71;
Pred. No. 3.7e-10;

RESULT 4
ID   ABB96657
AC   ABB96657;
DT   12-JUL-2002   (first entry)
DE   Omega-conopeptide M6.1 propeptide.

ABB96657 standard; Peptide; 71 AA.

KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
OS   Conus magus.

Column 2

PF   23-JUL-2001; 2001WO-US230041.
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98916.
PN
PS   Claim 1(c); Page 52; 195pp; English.

The invention relates to isolated omega-conopeptides, nucleic acid
sequences encoding them, and propeptide sequences. The activity of
the peptides of the invention may be described as, analgesic,
anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
cardiovascular, antiinflammatory, antimigraine, antidiabetic,
tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
Peptides of the invention act by modulating the activity of voltage gated
ion channels. They may be used for treating or preventing disorders
associated with voltage gated ion channels such as neurological
disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
associated with conditions of hypoxia, anoxia, ischaemia, stroke,
cerebrovascular accident, brain or spinal chord trauma, drowning,
suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
migraine; inflammation or cardiovascular disorders. They may also be used
for treating psychiatric disorders e.g. psychosis, anxiety or
schizophrenia. The analgesic agents of the invention show diminished side
effects and toxicity, and are non-addictive. The sequences given in
records ABB96595-ABB96697 represent omega-conopeptide propeptide
sequences.

SQ   Sequence   71 AA;

Query Match   100.0%;
Best Local Similarity   100.0%;
Matches   25;   Conservative   0;   Mismatches   0;   Indels   0;   Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
      ||||||||||||||||||||||||||
Db   46 CKGTGKPCSRIAYNCCTGSCRSGKC 70

Score 153;   DB 23;   Length 71;
Pred. No. 3.7e-10;

RESULT 5
ID   ABB96838
AC   ABB96838;
DT   12-JUL-2002   (first entry)
DE   Omega-conopeptide Cn6.7 toxin sequence.

ABB96838 standard; Peptide; 25 AA.

KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
OS   Conus consors.

XX
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI: 2002-257318/30.
XX
XX
PS   Claim 1(a); Page 71; 195pp; English.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
XX   cardiovascular disorders -
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96807-ABB96905 represent omega-conopeptide toxin sequences.
XX
SQ   Sequence 25 AA;

Query Match   99.3%; Score 152; DB 23; Length 25;
Best Local Similarity   96.0%; Pred. No. 2e-10;
Matches 24; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              |||||||||||||||||||||||||
Db   1 CKGTGKPCSRVAYNCCTGSCRSGKC 25

RESULT 6
ID   ABB96634 standard; Peptide; 71 AA.
XX
AC   ABB96634;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Cn6.7 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia..

XX
OS   Conus consors.
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI: 2002-257318/30.
DR   N-PSDB; ABI98893.
XX
PS   Claim 1(c); Page 40; 195pp; English.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
XX   cardiovascular disorders -
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders e.g. psychosis,
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
SQ   Sequence 71 AA;

Query Match   99.3%; Score 152; DB 23; Length 71;
Best Local Similarity   96.0%; Pred. No. 4.8e-10;
Matches 24; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              |||||||||||||:|||||||||||||
Db   46 CKGTGKPCSRVAYNCCTGSCRSGKC 70

RESULT 7
ID   ABB96815 standard; Peptide; 25 AA.
XX
AC   ABB96815;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Ay6.1 toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;

KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus aurislacus.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US23041.
XX
PR 21-JUL-2000; 2000US-219616P.
PR 05-FEB-2001; 2001US-265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurological or
PT cardiovascular disorders -
XX
PS Claim 1(a); Page 71; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of
CC the peptides of the invention may be described as, analgesic,
CC anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC Peptides of the invention act by modulating the activity of voltage gated
CC ion channels. They may be used for treating or preventing disorders
CC associated with voltage gated ion channels such as neurological
CC disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC cerebrovascular accident, brain or spinal chord trauma, drowning,
CC suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC migraine; inflammation or cardiovascular disorders. They may also be used
CC for treating psychiatric disorders e.g. psychosis, anxiety or
CC schizophrenia. The analgesic agents of the invention show diminished side
CC effects and toxicity, and are non-addictive. The sequences given in
CC records ABB96807-ABB96905 represent omega-conopeptide toxin sequences.
XX
SQ Sequence 25 AA;

Query Match   94.1%; Score 144; DB 23; Length 25;
Best Local Similarity   92.0%; Pred. No. 1.6e-09;
Matches 23; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       |||||||||:|||||||||||||||
Db 1 CKGKGKPCSRISYNCCTGSCRSGKC 25

RESULT 8
ABB96607
ID ABB96607 standard; Peptide; 71 AA.
XX
AC ABB96607;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Ay6.1 propeptide.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;

KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus aurislacus.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US23041.
XX
PR 21-JUL-2000; 2000US-219616P.
PR 05-FEB-2001; 2001US-265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
DR N-PSDB; ABL98867.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurological or
PT cardiovascular disorders -
XX
PS Claim 1(c); Page 28; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of
CC the peptides of the invention may be described as, analgesic,
CC anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC Peptides of the invention act by modulating the activity of voltage gated
CC ion channels. They may be used for treating or preventing disorders
CC associated with voltage gated ion channels such as neurological
CC disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC cerebrovascular accident, brain or spinal chord trauma, drowning,
CC suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC migraine; inflammation or cardiovascular disorders. They may also be used
CC for treating psychiatric disorders e.g. psychosis, anxiety or
CC schizophrenia. The analgesic agents of the invention show diminished side
CC effects and toxicity, and are non-addictive. The sequences given in
CC records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC sequences.
XX
SQ Sequence 71 AA;

Query Match   94.1%; Score 144; DB 23; Length 71;
Best Local Similarity   92.0%; Pred. No. 3.7e-09;
Matches 23; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       ||| ||||||||:||||||||||||
Db 46 CKGKGKPCSRISYNCCTGSCRSGKC 70

RESULT 9
AAY87540
ID AAY87540 standard; peptide; 25 AA.
XX
AC AAY87540;
XX
DT 18-JUL-2000 (first entry)
XX
DE Mature conotoxin peptide #11.

Left column

```
XX
KW   Mature conotoxin; brocade cone shell; line cone shell; drug screening;
     neuronal inhibitor; muscle inhibitor; analgesic.
XX
OS   Conus sp.
XX
XX
PN   CN1237584-A.
XX
PD   08-DEC-1999.
XX
PF   30-APR-1999;     99CN-0106070.
XX
PR   30-APR-1999;     99CN-0106070.
XX
PA   (BIOL-) BIOLOGICAL ENG INST ACAD MILITARY MEDICI.
XX
PI   Lu B, Huang P;
XX
XX
DR   WPI; 2000-351193/31.
XX
PT   Conotoxin peptide from brocade cone shells useful as analgesic -
XX
PS   Claim 1A; Page 5; 20pp; Chinese.
XX
CC   The invention relates to 14 novel mature conotoxin peptides from marine
CC   snails (Conus species); conotoxin precursor proteins; and cDNAs
CC   encoding the conotoxin precursors. The mature peptide sequences were
CC   discovered by obtaining conotoxin cDNA sequences from mRNA from the
CC   brocade cone shell (Conus textile) or the line cone shell (Conus
CC   striatus). The cDNA sequences were used to determine the conotoxin
CC   precursor protein sequences, and the sequences of the mature conotoxin
CC   peptides were inferred from the precursor sequences. The mature
CC   conotoxin peptides can be obtained via chemical synthesis or by in vitro
CC   gene expression. Conotoxins inhibit the function of neurons and muscle
CC   cells. Certain conotoxins interfere with synaptic transmission, while
CC   others act on muscle or at the neuromuscular junction. The 14 novel
CC   conotoxins have unique receptor specificity and affinity, so can be
CC   used as screening tools to identify new drugs. Conotoxin #11 (AAY87540)
CC   may be used for pain relief. Sequences AAY87420, AAY87522, AAY87524,
CC   AAY87526, AAY87528, AAY87530, AAY87532, AAY87534, AAY87536, AAY87538,
CC   AAY87540, AAY87542, AAY87544 and AAY87546 represent mature conotoxins
CC   #1-#14, respectively.
XX
SQ   Sequence   25 AA;

Query Match            92.8%;  Score 142;  DB 21;   Length 25;
Best Local Similarity   92.0%;
Matches   23;  Conservative    0;  Mismatches   2;  Indels    0;  Gaps    0;

Qy          1 CKGTGKRPCSRIAYNCCTGSCRSGKC 25
                || |||||||||||||||||||||||
Db          1 CKAAGKPCSRIAYNCCTGSCRSGKC 25


RESULT 10
AAY87541
ID   AAY87541 standard; protein; 71 AA.
XX
AC   AAY87541;
XX
DT   18-JUL-2000 (first entry)
XX
DE   Conotoxin peptide #11 precursor.
XX
KW   Conotoxin precursor; brocade cone shell; line cone shell; drug screening;
     neuronal inhibitor; muscle inhibitor; analgesic.
XX
OS   Conus sp.
XX
XX
FH   Key             Location/Qualifiers
FH
FT   Misc-difference 6
FT                   /note= "Encoded by ATG"
XX
```

Right column

```
PN   CN1237584-A.
XX
PD   08-DEC-1999.
XX
PF   30-APR-1999;     99CN-0106070.
XX
PR   30-APR-1999;     99CN-0106070.
XX
PA   (BIOL-) BIOLOGICAL ENG INST ACAD MILITARY MEDICI.
XX
PI   Lu B, Huang P;
XX
DR   WPI; 2000-351193/31.
DR   N-PSDB; AAA10463.
XX
PT   Conotoxin peptide from brocade cone shells useful as analgesic -
XX
PS   Claim 1A; Page 5-6; 20pp; Chinese.
XX
CC   The invention relates to 14 novel mature conotoxin peptides from marine
CC   snails (Conus species); conotoxin precursor proteins; and cDNAs
CC   encoding the conotoxin precursors. The mature peptide sequences were
CC   discovered by obtaining conotoxin cDNA sequences from mRNA from the
CC   brocade cone shell (Conus textile) or the line cone shell (Conus
CC   striatus). The cDNA sequences were used to determine the conotoxin
CC   precursor protein sequences, and the sequences of the mature conotoxin
CC   peptides were inferred from the precursor sequences. The mature
CC   conotoxin peptides can be obtained via chemical synthesis or by in vitro
CC   gene expression. Conotoxins inhibit the function of neurons and muscle
CC   cells. Certain conotoxins interfere with synaptic transmission, while
CC   others act on muscle or at the neuromuscular junction. The 14 novel
CC   conotoxins have unique receptor specificity and affinity, so can be
CC   used as screening tools to identify new drugs. Conotoxin #11 (AAY87540)
CC   may be used for pain relief. Sequences AAY87421, AAY87523, AAY87525,
CC   AAY87527, AAY87529, AAY87531, AAY87533, AAY87535, AAY87537, AAY87539,
CC   AAY87541, AAY87543, AAY87545 and AAY87547 represent the precursors of
CC   conotoxins #1-#14, respectively.
XX
SQ   Sequence   71 AA;

Query Match            92.8%;  Score 142;  DB 21;   Length 71;
Best Local Similarity   92.0%;
Matches   23;  Conservative    0;  Mismatches   2;  Indels    0;  Gaps    0;

Qy          1 CKGTGKRPCSRIAYNCCTGSCRSGKC 25
                || ||||||||||||||||||||||
Db         46 CKAAGKPCSRIAYNCCTGSCRSGKC 70


RESULT 11
AB996817
ID   AB996817 standard; peptide; 25 AA.
XX
AC   AB996817;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Ay6.3 toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus aurisiacus.
XX
PN   WO20020707675-A2.
XX
```

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PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PS   Claim 1(a); Page 71; 195pp; English.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96807-ABB96905 represent omega-conopeptide toxin sequences.
XX
SQ   Sequence     25 AA;

Qy         Best Local Similarity    92.2%;   Score 141;  DB 23;   Length 25;
           Matches   23;  Conservative   0;  Mismatches   2;   Indels   0;  Gaps   0;   Pred. No. 3.4e-09;

Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        || |||||||||||||||||||||||
Db    1 CKAKGKPCSRIAYNCCTGSCRSGKC 25


RESULT 12
ABB96609
ID   ABB96609 standard; Peptide; 71 AA.
XX
AC   ABB96609;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Ay6.3 propeptide.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus aurisiacus.
XX
```

```
PN   WO20020707675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
DR   N-PSDB; ABL98869.
XX
PS   Claim 1(c); Page 29; 195pp; English.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
SQ   Sequence     71 AA;

Qy         Best Local Similarity    92.2%;   Score 141;  DB 23;   Length 71;
           Matches   23;  Conservative   0;  Mismatches   2;   Indels   0;  Gaps   0;   Pred. No. 8.1e-09;

Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        || |||||||||||||||||||||||
Db   46 CKAKGKPCSRIAYNCCTGSCRSGKC 70


RESULT 13
ABB96870
ID   ABB96870 standard; Peptide; 25 AA.
XX
AC   ABB96870;
XX
DT   12-JUL-2002 (first entry)
XX
DE   Omega-conopeptide Mn6.1 toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
```

RESULT 14
ID   ABB96661
AC   ABB96661;
DT   12-JUL-2002 (first entry)
DE   Omega-conopeptide Mn6.1 propeptide.
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   neuroprotective; cerebroprotective; cardiovascular; cardiant;
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic;
DE   Omega-conopeptide Mn6.1 propeptide.
PA   (COGN-) COGNETIX INC.
PA   (UTAH) UNIV UTAH RES FOUND.
PN   WO20207675-A2.
OS   Conus monachus.
KW   psychosis; anxiety; schizophrenia.

Query Match 90.8%; Score 139; DB 23; Length 25;
Best Local Similarity 92.0%; Pred. No. 5.7e-09;
Matches 23; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Sequence 25 AA;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       |||||||||||||||||||||||||
Db   1 CKSTGKSCSRIAYNCCTGSCRSGKC 25

WPI; 2002-257318/30.
DR   N-PSDB; ABL98920.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(a); Page 72; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96807-ABB96905 represent omega-conopeptide toxin sequences.
XX
PN   WO20207675-A2.
PD   31-JAN-2002.
PF   23-JUL-2001; 2001WO-US23041.
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
OS   Conus monachus.
XX
KW   psychosis; anxiety; schizophrenia.

RESULT 15
ID   ABB96763
AC   ABB96763;
DT   12-JUL-2002 (first entry)
DE   Omega-conopeptide M6.1 generic toxin sequence.
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;

Query Match 90.8%; Score 139; DB 23; Length 71;
Best Local Similarity 92.0%; Pred. No. 1.3e-08;
Matches 23; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Sequence 71 AA;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       |||||||||||||||||||||||||
Db 46 CKSTGKSCSRIAYNCCTGSCRSGKC 70

WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Claim 1(c); Page 53; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96595-ABB96697 represent omega-conopeptide propeptide
CC   sequences.
XX
PN   WO20207675-A2.
PD   31-JAN-2002.
PF   23-JUL-2001; 2001WO-US23041.
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
OS   Conus monachus.
XX
KW   psychosis; anxiety; schizophrenia.
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;

```
KW   antimigraine; antidiabetic; tranquilliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus magus.
XX
FH   Key             Location/Qualifiers
FH
FT   Misc-difference 7
FT                   /label= OTHER
FT                   /note= "OTHER is Pro or Hydroxy Pro"
FT   Misc-difference 13
FT                   /label= OTHER
FT                   /note= "OTHER is Tyr, 125I-Tyr, mono-iodo-Tyr or
FT                   di-iodo-Tyr or O-sulpho-Tyr or O-Phospho-Tyr"
XX
PN   WO2002076675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US23041.
XX
PR   21-JUL-2000; 2000US-219616P.
PR   05-FEB-2001; 2001US-265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
PI   Jacobsen R, Jones RM, Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurological or
PT   cardiovascular disorders -
XX
PS   Example 2; Page 52; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of
CC   the peptides of the invention may be described as, analgesic,
CC   anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective,
CC   cardiovascular, antiinflammatory, antimigraine, antidiabetic,
CC   tranquilliser, vulnerary, antipsychotic, anxiolytic and neuroleptic.
CC   Peptides of the invention act by modulating the activity of voltage gated
CC   ion channels. They may be used for treating or preventing disorders
CC   associated with voltage gated ion channels such as neurological
CC   disorders, e.g. seizure (associated with epilepsy), neurotoxic injury
CC   associated with conditions of hypoxia, anoxia, ischaemia, stroke,
CC   cerebrovascular accident, brain or spinal chord trauma, drowning,
CC   suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g.
CC   migraine; inflammation or cardiovascular disorders. They may also be used
CC   for treating psychiatric disorders e.g. psychosis, anxiety or
CC   schizophrenia. The analgesic agents of the invention show diminished side
CC   effects and toxicity, and are non-addictive. The sequences given in
CC   records ABB96698-ABB96806 represent omega-conopeptide generic toxin
CC   sequences.
XX
SQ   Sequence    25 AA;

Query Match             88.9%;  Score 136; DB 23;  Length 25;
Best Local Similarity   92.0%;  Pred. No. 1.2e-08;
Matches   23;  Conservative   0;  Mismatches   2;  Indels   0;  Gaps   0;

Qy          1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
              ||||| |||||| ||||||||||||
Db          1 CKGTGKXCSRIAXNCCTGSCRSGKC 25
```

GenCore version 5.1.4_p5_4578
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OM protein - protein search, using sw model

Run on: May 20, 2003, 15:34:55 ; Search time 13.8021 Seconds
                 (without alignments)
                 174.130 Million cell updates/sec

Title: US-09-910-082A-375
Perfect score: 153
Sequence: 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25

Scoring table: BLOSUM62
                 Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

Database :   PIR_73:*
                 1: pir1:*
                 2: pir2:*
                 3: pir3:*
                 4: pir4:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	121	79.1	25	2	JH0700	omega-conotoxin MV
2	105	68.6	25	2	JH0701	omega-conotoxin MV
3	98.5	64.4	29	2	JH0699	omega-conotoxin MV
4	94	61.4	29	2	A58537	omega-conotoxin MV
5	89.5	58.5	26	2	C44379	omega-conotoxin SV
6	67.5	44.1	29	2	A43620	omega-conotoxin GV
7	67.5	44.1	29	2	B43620	omega-conotoxin GV
8	66	43.1	2664	2	T28626	variant-specific s
9	61.5	40.2	73	1	NTKN6G	omega-conotoxin GV
10	61.5	40.2	909	1	ORXLL1	LDL receptor 1 pre
11	61	39.9	78	2	S12513	delta-conotoxin Tx
12	60.5	39.5	139	2	S54085	probable membrane
13	60	39.2	24	2	B44379	omega-conotoxin SV
14	60	39.2	27	2	S19619	delta-conotoxin Tx
15	60	39.2	4753	1	A47437	LDL-receptor-relat
16	59.5	52	2150	2	T10299	conotoxin-like pro
17	59	38.6	2150	2	T32497	hypothetical prote
18	58.5	38.2	909	1	ORXLL2	LDL receptor 2 pre
19	58	37.9	816	2	C69493	hypothetical prote
20	57.5	37.6	1291	2	T21694	hypothetical prote
21	56	36.6	972	2	A30363	glycoprotein GP330
22	56	36.6	1408	2	S16148	gene serrate prote
23	56	36.6	1650	2	S53457	dominant autoantig
24	56	36.6	4543	1	A53102	alpha-2-macroglobu
25	56	36.6	4544	1	S02392	alpha-2-macroglobu
26	56	36.6	4660	2	T42737	gp330 protein prec
27	55	35.9	385	2	A54785	preadipocyte facto
28	55	35.9	385	2	S53718	homeotic protein d
29	54.5	35.6	176	2	T17935	hypothetical prote
30	54	35.3	862	1	QRMSLD	LDL receptor precu
31	54	35.3	1369	2	S70713	protein-tyrosine k
32	53.5	35.0	491	2	S05408	keratin, type II,
33	53	34.6	64	2	A25775	metallothionein A
34	53	34.6	64	2	A33825	metallothionein A
35	53	34.6	621	2	I38467	low density lipopr
36	52.5	34.3	860	1	QRHULD	LDL receptor precu
37	52	34.0	72	2	S39417	metallothionein 10
38	52	34.0	4545	1	S25111	alpha-2-macroglobu
39	51.5	33.7	37	2	E44007	metallothionein -
40	51.5	33.7	65	2	A38739	aptotoxin III - tr
41	51.5	33.7	491	2	S52920	metallothionein (EC 3.
42	51.5	33.7	544	2	S52477	disintegrin (EC 3.
43	51.5	33.7	1172	2	A42587	thrombospondin 2 p
44	51.5	33.7	2706	2	T28155	variant-specific s
45	51	33.3	71	2	AC3461	non-essential pilu

ALIGNMENTS

RESULT 1
JH0700
omega-conotoxin MVIIA [validated] - cone shell (Conus magus)
C;Species: Conus magus (magus cone)
C;Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 15-Sep-2000
C;Accession: JH0700; C60133; A34115
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J
Neuron 9, 69-77, 1992
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.
A;Reference number: JH0699; MUID:92337922; PMID:1352986
A;Accession: JH0700
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Residues: 1-25 <HIL>
R;Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Sa
Science 230, 1338-1343, 1985
A;Title: Peptide neurotoxins from fish-hunting cone snails.
A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Accession: C60133
A;Molecule type: protein
A;Residues: 1-25 <OLI>
R;Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R
Biochemistry 26, 2086-2090, 1987
A;Title: Neuronal calcium channel antagonists. Discrimination between calcium channel
A;Reference number: A34115; MUID:87299637; PMID:2441741
A;Contents: annotation
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
submitted to the Brookhaven Protein Data Bank, August 1996
A;Reference number: A67648; PDB:1MVI
A;Contents: annotation; conformation by (1)H-NMR, residues 1-25
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
J. Mol. Biol. 263, 297-310, 1996
A;Title: A consensus structure for omega-conotoxins with different selectivities for
A;Reference number: A58619; MUID:97070382; PMID:8913308
A;Contents: annotation; conformation by (1)H-NMR
R;Kohno, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.
submitted to the Brookhaven Protein Data Bank, April 1995
A;Reference number: A66296; PDB:1OMG
A;Contents: annotation; conformation by (1)H-NMR, residues 1-25
R;Kohno, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.
Biochemistry 34, 10256-10265, 1995
A;Title: Three-dimensional structure in solution of the calcium channel blocker omega
A;Reference number: A58627; MUID:95367555; PMID:7640281
A;Contents: annotation; conformation by (1)H-NMR
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel
F;1-16, 8-20,15-25/Disulfide bonds: #status predicted
F;25/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match   79.1%;   Score 121; DB 2;   Length 25;
Best Local Similarity   76.0%;   Pred. No. 2.6e-07;
Matches 19;   Conservative   2;   Mismatches   4;   Indels   0;   Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
         |||·|·||·||·|||||||||||||
Db   1 CKGKGAKCSRLMYDCCTGSCRSGKC 25

RESULT 2
JH0701
omega-conotoxin MVIIB - cone shell (Conus magus)
C;Species: Conus magus (magus cone)
C;Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 23-May-1997
A;Accession: JH0701
C;Accession: JH0701; B34115
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Residues: 1-25 <HIL>
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M
Neuron 9, 69-77, 1992
A;Reference number: JH0701; MUID:92337922; PMID:1352986
R;Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.;
Biochemistry 26, 2086-2090, 1987
A;Reference number: A34115; MUID:87299637; PMID:2441741
A;Title: Neuronal calcium channel antagonists. Discrimination between calcium channel su
A;Superfamily: omega-conotoxin
A;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh
C;Superfamily: omega-conotoxin
A;Molecule type: protein
A;Residues: 1-25 <OLI>
A;Accession: B34115
F;25/Modified site: amidated carboxyl end (Cys) #status predicted

Query Match   68.6%; Score 105; DB 2; Length 25;
Best Local Similarity   64.0%;
  Matches   16; Conservative   2; Mismatches   7; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
         ||||·||·||·||||·||·|||·||
Db   1 CKGKGASCRLMYDCCTGSCRSGKC 25

F;3-28/Product: omega-conotoxin MVIIC #status experimental <MAT>
F;3-18,10-22,17-28/Disulfide bonds: #status experimental
F;28/Modified site: amidated carboxyl end (Cys) (amide in mature form from following

Query Match   64.4%; Score 98.5; DB 2; Length 29;
Best Local Similarity   61.5%;
  Matches   16; Conservative   3; Mismatches   6; Indels   1; Gaps   1;

Qy   1 CKGTGKPCSRIAYNCCTGSC-RSGKC 25
         |||·|·||·||||||||·|| |·|||
Db   3 CKGKGAPCRKTMYDCCSGSCGRRGKC 28

RESULT 3
JH0699
omega-conotoxin MVIIC precursor [validated] - cone shell (Conus magus) (fragment)
C;Species: Conus magus (magus cone)
C;Date: 17-Apr-1993 #sequence_revision 11-Apr-1997 #text_change 15-Sep-2000
C;Accession: JH0699; PC2380
A;Accession: JH0699
C;Accession: PC2380; MUID:9516911; PMID:7864862
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M
Neuron 9, 69-77, 1992
A;Reference number: JH0699; MUID:92337922; PMID:1352986
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.
A;Reference number: PC2380; NID:g252126; PIDN:AAB22674.1; PID:g252127
R;Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Kimura, T.; Sakakibara, S.; Kyogoku, Y.;
Biochem. Biophys. Res. Commun. 207, 695-700, 1995
A;Title: Solution structure of omega-conotoxin MVIIC determined by NMR.
A;Accession: PC2380
A;Molecule type: protein
A;Residues: 3-28 <NEM>
R;Farr-Jones, S.; Basus, V.J.
A;Residues: 1-29 <HIL>
A;Cross-references: GB:S40826; NID:g252126
C;Species: Conus magus (magus cone)
A;Molecule type: mRNA
A;Accession: JH0699
A;Residues: 1-29 <HIL>
R;Farr-Jones, S.; Basus, V.J.
submitted to the Brookhaven Protein Data Bank, December 1994
A;Reference number: A66297; PDB:1OMN
Biochem. Biophys. Res. Commun. 207, 695-700, 1995
A;Reference number: A58619; MUID:97070382; PMID:8913308
A;Title: A consensus structure for omega-conotoxins with different selectivities for
J. Mol. Biol. 248, 106-124, 1995
A;Contents: annotation; conformation by (1)H-NMR, residues 3-28
A;Title: Solution structure of omega-conotoxin MVIIC, a high affinity of P-type calcium
A;Reference number: A58582; MUID:95248539; PMID:7731037
A;Contents: annotation; conformation by (1)H-NMR
C;Superfamily: omega-conotoxin
A;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh

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RESULT 4
A58537
omega-conotoxin MVIID precursor - cone shell (Conus magus) (fragment)
C;Species: Conus magus (magus cone)
C;Date: 27-Mar-1997 #sequence_revision 11-Apr-1997 #text_change 16-Jul-1999
C;Accession: A58537
R;Monje, V.D.; Haack, J.A.; Naisbitt, S.R.; Miljanich, G.; Ramachandran, J.; Nasdasdi
Neuropharmacology 32, 1141-1149, 1993
A;Title: A new Conus peptide ligand for Ca channel subtypes.
A;Reference number: A58537; MUID:94150815; PMID:8107968
A;Accession: A58537
A;Molecule type: mRNA
A;Residues: 1-29 <MON>
A;Cross-references: GB:S69322; NID:g543399; PIDN:AAB29902.1; PID:g545400
A;Note: the predicted peptide was chemically synthesized and alternative disulfide bo
C;Superfamily: omega-conotoxin
A;Keywords: toxin; venom
A;Residues: 1-29 <MON>
A;Accession: A58537
F;4-19,11-23,18-28/Disulfide bonds: #status predicted
F;4-29/Product: omega-conotoxin MVIID #status predicted <MAT>

Query Match   61.4%; Score 94; DB 2; Length 29;
Best Local Similarity   52.0%;
  Matches   13; Conservative   4; Mismatches   8; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
         |||·|·||·||||·|||·||||||
Db   4 CQGRGASCRKTMYNCCSGSCNRGRC 28

RESULT 5
C44379
omega-conotoxin SVIB [validated] - cone shell (Conus striatus)
N;Alternate names: SNX-183
C;Species: Conus striatus (striated cone)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 15-Sep-2000
C;Accession: C44379
R;Ramilo, C.A.; Zafaralla, G.C.; Nadasdi, L.; Hammerland, L.G.; Yoshikami, D.; Gray,
Biochemistry 31, 9919-9926, 1992
A;Title: Novel alpha- and omega-conotoxins from Conus striatus venom.
A;Reference number: A44379; MUID:93001172; PMID:1390774
A;Accession: C44379
A;Molecule type: protein
A;Residues: 1-26 <RAM>
A;Cross-references: CAS:143306-19-8
A;Experimental source: venom
A;Note: sequence extracted from NCBI backbone (NCBIP:1116002); structure confirmed by
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
submitted to the Brookhaven Protein Data Bank, August 1996
A;Reference number: A67649; PDB:1MVJ
A;Contents: annotation; conformation by (1)H-NMR, residues 1-26
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.
J. Mol. Biol. 263, 297-310, 1996
A;Title: A consensus structure for omega-conotoxins with different selectivities for
A;Reference number: A58619; MUID:97070382; PMID:8913308
A;Contents: annotation; conformation by (1)H-NMR
C;Comment: This omega-conotoxin blocks presynaptic calcium channels.
C;Superfamily: omega-conotoxin
A;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel
F;1-16,8-20,15-26/Disulfide bonds: #status predicted
F;26/Modified site: amidated carboxyl end (Cys) #status experimental

RESULT 6
A43620

Qy   1 CKGTGKPCSRIAYNCCTGSC-RSGKC 25
        || | |:||||| ||||||| ||||||
Db   1 CKLKGOSCRKTSVDCCSGSCGRSGKC 26

Query Match   58.5%;   Score 89.5;   DB 2;   Length 26;
Best Local Similarity   57.7%;   Pred. No. 0.00087;
Matches 15;   Conservative   5;   Mismatches   5;   Indels   1;   Gaps   1;

omega-conotoxin GVIIA - cone shell (Conus geographus)
N;Alternate names: shaker peptide GVIIA
C;Species: Conus geographus (geography cone)
C;Date: 11-Dec-1992 #sequence_revision 11-Dec-1992 #text_change 23-May-1997
A;Accession: A43620
A;Molecule type: protein
A;Residues: 1-29 <OLI>
A;Superfamily: omega-conotoxin
A;Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyproline;
F;1-16,8-19,15-26/Disulfide bonds: #status predicted
F;4,7/Modified site: 4-hydroxyproline (Pro) #status experimental
R;Olivera, B.M.; Gray, W.R.; Zelkus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santo
Science 230, 1338-1343, 1985
A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Title: Peptide neurotoxins from fish-hunting cone snails.

RESULT 7
B43620

Qy   1 CKSPGTPCSRGMRDCCT-SCLLYSNKC 25
        || | ||| |||||| | ||||:||||
Db   1 CKSPGTPCSRGMRDCCT-SCLLYSNKC 26

Query Match   55.6%;   Score 67.5;   DB 2;   Length 29;
Best Local Similarity   55.6%;   Pred. No. 0.26;
Matches 15;   Conservative   1;   Mismatches   8;   Indels   3;   Gaps   2;

omega-conotoxin GVIB - cone shell (Conus geographus)
N;Alternate names: shaker peptide GVIB
C;Species: Conus geographus (geography cone)
C;Date: 11-Dec-1992 #text_change 23-May-1997
A;Accession: B43620
A;Molecule type: protein
A;Residues: 1-29 <OLI>
A;Superfamily: omega-conotoxin
A;Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyproline;
F;1-16,8-19,15-26/Disulfide bonds: #status predicted
F;4,7/Modified site: 4-hydroxyproline (Pro) #status experimental
R;Olivera, B.M.; Gray, W.R.; Zelkus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santo
Science 230, 1338-1343, 1985
A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Title: Peptide neurotoxins from fish-hunting cone snails.

RESULT 8
T28626

Qy   1 CKGTGKPCSRIAYNCCTGSC- RSGKC 25
        || ||||||||||| |||
Db   1 CKSPGTPCSRGMRDCCT-SCLLYSNKC 26

Query Match   44.1%;   Score 67.5;   DB 2;   Length 29;
Best Local Similarity   55.6%;   Pred. No. 0.26;
Matches 15;   Conservative   1;   Mismatches   8;   Indels   3;   Gaps   2;

variant-specific surface protein 2 - malaria parasite (Plasmodium falciparum)
C;Species: Plasmodium falciparum
C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 09-Jun-2000
A;Accession: T28626
R;Su, X.Z.; Heatwole, V.M.; Wertheimer, S.P.; Guinet, F.; Herrfeldt, J.A.; Peterson, D.S

Cell 82, 89-100, 1995
A;Title: The large diverse gene family var encodes proteins involved in cytoadherence
A;Reference number: 220487; MUID:95330813; PMID:7606788
A;Accession: T28626
A;Status: Preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-2664 <SUX>
A;Cross-references: EMBL:L40609; NID:g886376; PID:g886378; PIDN:AAA75398.1
A;Genetics:
A;Introns: 2197/3
A;Note: var-2

Qy   6 KPCSRIAYNCCTGSCRSG------KC 25
        ||| | ||||| |:||| ||
Db 1805 KPCSSFKINCRNGNCRSGDGDTKEKC 1830

Query Match   43.1%;   Score 66;   DB 2;   Length 2664;
Best Local Similarity   50.0%;   Pred. No. 6.3;
Matches 13;   Conservative   1;   Mismatches   6;   Indels   6;   Gaps   1;

RESULT 9
NTKN6G

omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)
N;Alternate names: shaker peptide GVIB
N;Contains: omega-conotoxin GVIA; omega-conotoxin GVIB; omega-conotoxin GVIC
C;Species: Conus geographus (geography cone)
C;Date: 25-Feb-1985 #sequence_revision 23-Mar-1995 #text_change 15-Sep-2000
A;Accession: A44006; A60133; B60133; A01785
R;Colledge, C.J.; Hunsperger, J.P.; Imperial, J.S.; Hillyard, D.R.
Toxicon 30, 1111-1116, 1992
A;Title: Precursor structure of omega-conotoxin GVIA determined from a cDNA clone.
A;Reference number: A44006; MUID:93069266; PMID:1440648
A;Accession: A44006
A;Molecule type: mRNA
A;Residues: 1-73 <COL>
A;Cross-references: GB:M84612; NID:g156520; PIDN:AAA81590.1; NCBIP:119532)
A;Note: sequence extracted from NCBI backbone (NCBIN:119531, NCBIP:119532)
A;Experimental source: venom duct
R;Olivera, B.M.; Gray, W.R.; Zelkus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Sa
Science 230, 1338-1343, 1985
A;Title: Peptide neurotoxins from fish-hunting cone snails.
A;Reference number: A43620; MUID:86070213; PMID:4071055
A;Accession: A60133
A;Molecule type: protein
A;Residues: 46-73 <OLI>
A;Accession: B60133
A;Molecule type: protein
A;Residues: 46-71 <OLI>
A;Accession: A01785
A;Molecule type: protein
A;Residues: 46-72 <OL2>
R;Olivera, B.M.; McIntosh, J.M.; Cruz, L.J.; Luque, F.A.; Gray, W.R.
Biochemistry 23, 5087-5090, 1984
A;Title: Purification and sequence of a presynaptic peptide toxin from Conus geograph
A;Reference number: A01785; MUID:85072796; PMID:6509012
A;Accession: A01785
A;Molecule type: protein
A;Residues: 46-72 <OL3>
R;Nishiuchi, Y.; Kumagaye, K.; Noda, Y.; Watanabe, T.X.; Sakakibara, S.
Biopolymers 25, S61-S68, 1986
A;Title: Synthesis and secondary-structure determination of omega-conotoxin GVIA: a 2
A;Reference number: A49017; MUID:87049928; PMID:3779030
A;Contents: annotation
A;Note: disulfide bonds determined and confirmed by chemical synthesis
R;Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus,
submitted to the Brookhaven Protein Data Bank, April 1993
A;Reference number: A51894;
A;Contents: annotation; conformation by (1)H-NMR, residues 46-72
R;Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus,
Biochemistry 32, 7396-7405, 1993
A;Title: Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy and re
A;Reference number: A58536; MUID:93332945; PMID:8338837
A;Contents: annotation; conformation by (1)H-NMR
R;Pallaghy, P.K.; Duggan, B.M.; Pennington, M.W.; Norton, R.S.
submitted to the Brookhaven Protein Data Bank, August 1993

A;Reference number: A51089; PDB:1CCO
A;Contents: annotation; conformation by (1)H-NMR, residues 46-72
A;Comment: There are several types of conotoxins: alpha, acting on postsynaptic membrane
neurotoxin.
C;Superfamily: omega-conotoxin
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-45/Domain: propeptide #status predicted <PRO>
F;46-73/Product: omega-conotoxin GVIA #status experimental <MAT1>
F;46-72/Product: omega-conotoxin GVIB #status experimental <MAT2>
F;46-72/Product: omega-conotoxin GVIC #status experimental <MAT3>
F;46-71/Product: omega-conotoxin GVIC #status experimental <MAT3>
F;46-61,53-64,60-71/Disulfide bonds: #status experimental
F;49,55,66/Modified site: 4-hydroxyproline (Pro) #status experimental
F;72/Modified site: amidated carboxyl end (Tyr) (amide in mature form from following gly

Query Match   40.2%;   Score 61.5;   DB 1;   Length 73;
Best Local Similarity   55.0%;
Matches   11;   Conservative   1;   Mismatches   7;   Indels   1;   Gaps   1;

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Qy    1 CKGTGKPCSRIAYNCCTGSC 20
          || || || |||||
Db   46 CKSPGSSCSPTSYNCCR-SC 64
```

RESULT 10
QRXLL1
LDL receptor 1 precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 18-Sep-1998
C;Accession: A40388
R;Mehta, K.D.; Chen, W.J.; Goldstein, J.L.; Brown, M.S.
J. Biol. Chem. 266, 10406-10414, 1991
A;Title: The low density lipoprotein receptor in Xenopus laevis. Five domains that resem
A;Reference number: A40388; MUID:91244815; PMID:1709931
A;Accession: A40388
A;Molecule type: mRNA
A;Residues: 1-909 <MEH>
C;Superfamily: LDL receptor; EGF homology; LDL receptor ligand-binding repeat homology;
nd complexes must first cluster into clathrin-coated pits.
C;Comment: This transmembrane glycoprotein binds LDL, the major cholesterol-carrying li
C;Keywords: cholesterol; coated pits; duplication; endocytosis; glycoprotein; LDL; lipi
C;Superfamily: LDL receptor; EGF homology <SIG>
F;1-21/Domain: signal sequence #status predicted <MAT>
F;22-909/Product: LDL receptor #status predicted
F;22-836/Domain: extracellular #status predicted <EXT>
F;27-63/Domain: LDL receptor ligand-binding repeat homology <LDL1>
F;68-104/Domain: LDL receptor ligand-binding repeat homology <LDL2>
F;109-143/Domain: LDL receptor ligand-binding repeat homology <LDL3>
F;148-183/Domain: LDL receptor ligand-binding repeat homology <LDL4>
F;195-229/Domain: LDL receptor ligand-binding repeat homology <LDL5>
F;234-268/Domain: LDL receptor ligand-binding repeat homology <LDL6>
F;274-311/Domain: LDL receptor ligand-binding repeat homology <LDL7>
F;316-350/Domain: EGF homology <EG1>
F;356-390/Domain: EGF homology <EG2>
F;397-436/Domain: YWTD-containing repeat homology <YW1>
F;437-483/Domain: YWTD-containing repeat homology <YW2>
F;484-526/Domain: YWTD-containing repeat homology <YW3>
F;527-570/Domain: YWTD-containing repeat homology <YW4>
F;571-613/Domain: YWTD-containing repeat homology <YW5>
F;614-656/Domain: YWTD-containing repeat homology <YW6>
F;665-709/Domain: EGF homology <EG3>
F;717-811/Region: clustered O-linked oligosaccharides
F;837-858/Domain: transmembrane #status predicted <TMM>
F;859-909/Domain: intracellular #status predicted <INT>
F;873-877/Region: coated-pit mediated internalization signal
F;886-898/Region: basolateral targeting signal
F;97,270,459/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;316-327,323-336,338-350,356-366,362-375,377-390,665-679,675-694,696-709/Disulfide bond

Query Match   40.2%;   Score 61.5;   DB 1;   Length 909;
Best Local Similarity   40.6%;
Matches   13;   Conservative   5;   Mismatches   7;   Indels   7;   Gaps   2;

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Qy    1 CKG-----TGKPCSRIAYNCCTGSC--RSGKC 25
          |:|      ||||||| :|:|  |:|
Db  183 CEGREPIKTDKPCSPLEFHCGSGECIHMSWKC 214
```

RESULT 11
S12513
delta-conotoxin TxVIA precursor - cone shell (Conus textile)
N;Alternate names: conotoxin IA; King-Kong peptide (KK-0)
C;Species: Conus textile (cloth-of-gold cone)
C;Date: 19-Mar-1997 #sequence_revision 11-Apr-1997 #text_change 16-Jul-1999
C;Accession: S12513; A30103; S19553
R;Woodward, S.R.; Cruz, L.J.; Olivera, B.M.; Hillyard, D.R.
EMBO J. 9, 1015-1020, 1990
A;Title: Constant and hypervariable regions in conotoxin propeptides.
A;Reference number: S12513; MUID:90214607; PMID:1691090
A;Accession: S12513
A;Molecule type: mRNA
A;Residues: 1-78 <WOO>
A;Cross-references: EMBL:X53283; NID:g10887; PIDN:CAA37377.1; PID:g10888
R;Hillyard, D.R.; Olivera, B.M.; Woodward, S.; Corpuz, G.P.; Gray, W.R.; Ramilo, C.A.
Biochemistry 28, 358-361, 1989
A;Title: Molluscan-specific toxins from the venom of Conus textile neovicarius.
A;Reference number: S19553; MUID:92104183; PMID:1761058
A;Accession: A30103
A;Molecule type: protein
A;Residues: 52-78 <FAI>
C;Superfamily: omega-conotoxin
C;Keywords: neurotoxin; sodium channel inhibitor; venom
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-51/Domain: propeptide #status predicted <PRO>
F;52-78/Product: delta-conotoxin TxVIA #status experimental <MAT>
F;53-68,60-72,67-77/Disulfide bonds: #status predicted

Query Match   39.9%;   Score 61;   DB 2;   Length 78;
Best Local Similarity   45.0%;
Matches   9;   Conservative   4;   Mismatches   7;   Indels   0;   Gaps   0;

```
Qy    1 CKGTGKPCSRIAYNCCTGSC 20
          |:| ::|  : ||| || |
Db   53 CKQSGEMCNILDQNCCDGYC 72
```

RESULT 12
S54085
probable membrane protein YPR064w - yeast (Saccharomyces cerevisiae)
N;Alternate names: hypothetical protein YPR499.19
C;Species: Saccharomyces cerevisiae
C;Date: 08-Jul-1995 #sequence_revision 19-Oct-1995 #text_change 19-Apr-2002
C;Accession: S54085
R;Badcock, K.; Churcher, C.M.
submitted to the EMBL Data Library, May 1995
A;Reference number: S54059
A;Accession: S54085
A;Molecule type: DNA
A;Residues: 1-139 <BAD>
A;Cross-references: EMBL:Z49219; NID:g805025; PID:g805044; GSPDB:GN00016; MIPS:YPR064
A;Experimental source: strain AB972
C;Genetics:
A;Gene: MPS:YPR064w
A;Cross-references: SGD:S0006268
A;Map position: 16R
C;Superfamily: Saccharomyces cerevisiae probable membrane protein YPR064w
C;Keywords: transmembrane protein
F;39-55/Domain: transmembrane #status predicted <TM1>
F;123-139/Domain: transmembrane #status predicted <TM2>

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Qy    5 GKPCSRI--------AYNCCTGSCRSGKC 25
        ||||||           |||||||||||
Db  100 GKPCSRTWRLLTRKKRAYCCCLFCCSSSYC 129
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RESULT 13
B44379
omega-conotoxin SVIA - cone shell (Conus striatus)
N;Alternate names: SNX-157
C;Species: Conus striatus (striated cone)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 23-May-1997
C;Accession: B44379
A;Molecule type: protein
A;Residues: 1-24 <RAM>
A;Cross-references: CAS:137706-81-1
R;Ramilo, C.A.; Zafaralla, G.C.; Nadasdi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R
Biochemistry 31, 9919-9926, 1992
A;Title: Novel alpha- and omega-conotoxins from Conus striatus venom.
A;Reference number: A44379; MUID:93003172; PMID:1390774
A;Comment: This omega-conotoxin blocks presynaptic calcium channels.
A;Superfamily: omega-conotoxin
A;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh
C;Superfamily: omega-conotoxin
A;Experimental source: venom
A;Note: sequence extracted from NCBI backbone (NCBIP:116001); structure confirmed by che
F;1-15,8-18,14-23/Disulfide bonds: #status predicted
F;24/Modified site: amidated carboxyl end (Thr) #status experimental

Query Match 39.5%; Score 60.5; DB 2; Length 139;
Best Local Similarity 43.3%;
Matches 13; Conservative 0; Mismatches 8; Indels 9; Gaps 1;

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Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        |:|:||  |:|:|||  |||||||
Db    1 CRSSGSPCG--VTSICCGRCYRGKC 23
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RESULT 14
S19619
delta-conotoxin TxIB - cone shell (Conus textile)
C;Species: Conus textile (cloth-of-gold cone)
C;Date: 19-Mar-1997 #sequence_revision 11-Apr-1997 #text_change 16-Jul-1999
C;Accession: S19619
A;Molecule type: protein
A;Residues: 1-27 <FAI>
R;Fainzilber, M.; Gordon, D.; Hasson, A.; Spira, M.E.; Zlotkin, E.
Eur. J. Biochem. 202, 589-595, 1991
A;Title: Mollusc-specific toxins from the venom of Conus textile neovicarius.
A;Reference number: S19553; MUID:92104183; PMID:1761058
C;Superfamily: omega-conotoxin
C;Keywords: neurotoxin; sodium channel inhibitor; venom
F;2-17,9-21,16-26/Disulfide bonds: #status predicted

Query Match 39.2%; Score 60; DB 2; Length 27;
Best Local Similarity 40.0%;
Matches 10; Conservative 3; Mismatches 10; Indels 2; Gaps 1;

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Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        ||: |:|  | ||| ||||||
Db    2 CKOSGEMCNVLDQNCCDGYC 21
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RESULT 15
A47437
LDL-receptor-related protein - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 18-Aug-2000
C;Accession: A47437; S27801; T21547
R;Yochem, J.; Greenwald, I.
Proc. Natl. Acad. Sci. U.S.A. 90, 4572-4576, 1993
A;Title: A gene for a low density lipoprotein receptor-related protein in the nematode C.ele
A;Description: A gene for an LDL receptor-related protein (LPR) in the nematod
A;Reference number: A47437; MUID:93281621; PMID:8506301
A;Accession: S27801
A;Molecule type: DNA
A;Residues: 1-4753 <YOC>
A;Cross-references: GB:M96150; NID:g156359; PIDN:AAA28105.1; PID:g156359
R;Yochem, J.; Greenwald, I.
submitted to the EMBL Data Library, July 1992
R;Wilkinson, J.
submitted to the EMBL Data Library, June 1996
A;Accession: T21547
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-4753 <WIL>
A;Cross-references: EMBL:Z73907; PIDN:CAA98124.1; GSPDB:GN00019; CESP:F29D11.1
A;Experimental source: clone F29D11
C;Genetics:
A;Gene: LPR
A;Map position: 1
A;Introns: 31/1; 88/1; 132/1; 172/3; 219/1; 298/1; 463/2; 526/3; 585/3; 780/2; 874/2;
15/1
A;Introns: 31/1; 133/1;
C;Superfamily: alpha-2-macroglobulin receptor; EGF homology; LDL receptor ligand-bind
C;Keywords: tandem repeat; transmembrane protein
F;53-87/Domain: LDL receptor ligand-binding repeat homology <LDL1>
F;92-131/Domain: LDL receptor ligand-binding repeat homology <LDL2>
F;138-175/Domain: LDL receptor ligand-binding repeat homology <LDL3>
F;182-218/Domain: LDL receptor ligand-binding repeat homology <LDL4>
F;223-257/Domain: LDL receptor ligand-binding repeat homology <LDL5>
F;262-297/Domain: LDL receptor ligand-binding repeat homology <LDL6>
F;302-336/Domain: EGF homology <EGF1>
F;1054-1095/Domain: LDL receptor ligand-binding repeat homology <LDL7>
F;1101-1138/Domain: LDL receptor ligand-binding repeat homology <LDL8>
F;1146-1182/Domain: LDL receptor ligand-binding repeat homology <LDL9>
F;1187-1223/Domain: LDL receptor ligand-binding repeat homology <LDL10>
F;1228-1263/Domain: LDL receptor ligand-binding repeat homology <LDL11>
F;1270-1307/Domain: LDL receptor ligand-binding repeat homology <LDL12>
F;1313-1350/Domain: LDL receptor ligand-binding repeat homology <LDL13>
F;1359-1396/Domain: LDL receptor ligand-binding repeat homology <LDL14>
F;1441-1475/Domain: EGF homology <EGF>
F;1611-1654/Domain: YWTD-containing repeat homology <YW33>
F;1101-1138/Domain: LDL receptor ligand-binding repeat homology <LDL15>
F;2792-2829/Domain: LDL receptor ligand-binding repeat homology <LDL16>
F;2834-2868/Domain: LDL receptor ligand-binding repeat homology <LDL17>
F;2874-2912/Domain: LDL receptor ligand-binding repeat homology <LDL18>
F;2919-2956/Domain: LDL receptor ligand-binding repeat homology <LDL19>
F;2961-2997/Domain: LDL receptor ligand-binding repeat homology <LDL20>
F;3006-3044/Domain: LDL receptor ligand-binding repeat homology <LDL21>
F;3049-3093/Domain: LDL receptor ligand-binding repeat homology <LDL22>
F;3100-3135/Domain: LDL receptor ligand-binding repeat homology <LDL23>
F;3140-3174/Domain: LDL receptor ligand-binding repeat homology <LDL24>
F;3187-3222/Domain: EGF homology <ECX1>
F;3586-3623/Domain: LDL receptor ligand-binding repeat homology <LDL25>
F;3627-3666/Domain: LDL receptor ligand-binding repeat homology <LDL26>
F;3671-3705/Domain: LDL receptor ligand-binding repeat homology <LDL27>
F;3709-3746/Domain: LDL receptor ligand-binding repeat homology <LDL28>
F;3753-3788/Domain: LDL receptor ligand-binding repeat homology <LDL29>
F;3793-3830/Domain: LDL receptor ligand-binding repeat homology <LDL30>
F;3833-3871/Domain: LDL receptor ligand-binding repeat homology <LDL31>
F;3878-3912/Domain: LDL receptor ligand-binding repeat homology <LDL32>
F;3917-3951/Domain: LDL receptor ligand-binding repeat homology <LDL33>
F;3959-3995/Domain: LDL receptor ligand-binding repeat homology <LDL34>
F;4000-4040/Domain: LDL receptor ligand-binding repeat homology <LDL35>
F;4049-4083/Domain: LDL receptor ligand-binding repeat homology
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F;4092-4130/Domain: EGF homology <EGF2>
F;4343-4386/Domain: LDL receptor YWTD-containing repeat homology <YW38>

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Query Match       39.2%;    Score 60;   DB 1;   Length 4753;
Best Local Similarity   43.5%;    Pred. No. 42;
Matches  10;  Conservative  2;  Mismatches  11;  Indels  0;  Gaps  0;

Qy    1 CKGTGKPCSRIAYNCCTGSCRSG 23
        | ||| :|||  : | | || |
Db 3871 CGGTTRPCSESEFRCNDGKCIPG 3893
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Search completed: May 20, 2003, 15:41:53 .
Job time : 14.8021 secs

OM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
Copyright (c) 1993 - 2003 Compugen Ltd.

Run on: May 20, 2003, 15:23:35 ; Search time 7.291167 Seconds
                                          (without alignments)
                                          142.205 Million cell updates/sec

Title: US-09-910-082A-375
Perfect score: 153
Sequence: 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25

Scoring table: BLOSUM62
                 Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

Database :   SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	142	92.8	71	1	Q9XZK2	CXO3_CONST conus stria
2	121	79.1	71	1	P05484	CXOA_CONMA conus magus
3	112	73.2	71	1	P5917	CXOA_CONCT conus catus
4	105	68.5	25	1	P05485	CXOB_CONMA conus magus
5	104.5	68.3	26	1	P58919	CXOC_CONCT conus catus
6	101	66.0	25	1	P58918	CXOB_CONCT conus catus
7	99	64.7	27	1	P58916	CXO7_CONCN conus conso
8	98.5	64.4	29	1	P37300	CXOC_CONMA conus magus
9	94	61.4	29	1	Q26350	CXOD_CONMA conus magus
10	89.5	58.5	72	1	P28881	CXOB_CONST conus stria
11	84	54.9	73	1	P58920	CXOD_CONCT conus catus
12	69.5	45.4	27	1	P58914	CXOA_CONRA conus radia
13	67.5	44.1	29	1	P05483	CXO7_CONGE conus geogr
14	62.5	40.8	26	1	P56714	CXO6_CONGE conus geogr
15	61.5	40.2	73	1	P01522	CXO6_CONGE conus geogr
16	61.5	40.2	909	1	Q99087	LDL1_XENLA xenopus lae
17	61	39.9	78	1	P18511	CXDA_CONTE conus texti
18	60	39.2	27	1	P24159	CXDB_CONTE conus texti
19	60	39.2	72	1	P28880	CXOA_CONST conus stria
20	60	39.2	4753	1	Q04833	LRP_CAEEL caenorhabdi
21	59.5	38.9	26	1	P58915	CXO6_CONTU conus tulip
22	59.5	38.9	52	1	O10286	CTL2_NPVOP orgyia pseu
23	59	38.6	72	1	Q9X215	CXO2_CONST conus stria
24	58.5	38.2	892	1	Q9O088	LDL2_XENLA xenopus lae
25	58	37.9	72	1	Q9XZ14	CXO1_CONST conus stria
26	57.5	37.6	1291	1	Q19981	YCB1_CAEEL caenorhabdi
27	56.5	36.9	37	1	P81599	TXOF_HADVE hadronyche
28	56	36.6	1408	1	P18168	SERR_DROME drosophila
29	56	36.6	4543	1	P9857	LRP1_CHICK gallus gall
30	56	36.6	4544	1	Q07954	LRP1_HUMAN homo sapien
31	56	36.6	4660	1	P98158	LRP2_RAT rattus norv
32	55	35.9	385	1	Q09163	DLK_MOUSE mus musculu
33	54	35.3	864	1	P35951	LDLR_MOUSE mus musculu

34	53.5	35.0	491	1	K2M2_SHEEP ovis aries
35	53	34.6	64	1	P04734	MTA_STRPU strongyloce
36	53	34.6	860	1	P01130	LDLR_HUMAN homo sapien
37	53	34.6	4655	1	P98164	LRP2_HUMAN homo sapien
38	52.5	34.3	72	1	MT12_MYTED mytilus edu
39	52	34.0	245	1	O19010	CRS3_HORSE equus cabal
40	51.5	33.7	37	1	P80247	MTYED equus edu
41	51.5	33.7	65	1	P49268	TXP3_APTSC aptostichus
42	51.5	33.7	1172	1	Q27287	MTB_STRPU strongyloce
43	51	33.3	77	1	Q03350	TSP2_MOUSE mus musculu
44	51	33.3	212	1	P18312	CXK1_CONTE conus textl
45	51	33.3	615	1	P15312	AGI_HORVU hordeum vul
					P00748	FA12_HUMAN homo sapien

ALIGNMENTS

RESULT 1
CXO3_CONST

ID   CXO3_CONST   STANDARD;   PRT;   71 AA.
AC   Q9XZK2;
DT   16-OCT-2001 (Rel. 40, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-type conotoxin SO3 precursor.
GN   SO3.
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE-20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC) (By
CC   similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.
CC   --
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   --
DR   EMBL; AF146348; AAD31908.1; -.
DR   HSSP; P05484; 1MVI.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Signal; Amidation.
FT   SIGNAL   1   22   POTENTIAL.
FT   PROPEP   23   44   POTENTIAL.
FT   PEPTIDE   45   70   OMEGA-TYPE CONOTOXIN SO3.
FT   DISULFID   46   61   BY SIMILARITY.
FT   DISULFID   53   65   BY SIMILARITY.
FT   DISULFID   60   70   BY SIMILARITY.
FT   MOD_RES   70   70   AMIDATION (G-71 PROVIDE AMIDE GROUP)
FT   (POTENTIAL).
SQ   SEQUENCE   71 AA;   7628 MW;   CE707ODCE3094D73 CRC64;

Query Match   92.8%; Score 142; DB 1; Length 71;
Best Local Similarity   92.0%; Pred. No. 7.2e-11;
Matches   23; Conservative   0; Mismatches   2; Indels   0; Gaps   0;

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Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
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Db   46 CKAAGKPCSRIAYNCCTGSCRSGKC 70
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RESULT 2
ID   CXOA_CONMA   STANDARD;   PRT;   71 AA.
AC   P05484;
DT   01-NOV-1988 (Rel. 09, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin MVIIa precursor (SNX-111) (Ziconotide).
OS   Conus magus (Magus cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6492;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
RN   [2]
RP   SEQUENCE OF 46-70.
RX   MEDLINE=86070213; PubMed=4071055;
RA   Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,
RA   Rivier J., de Santos V., Cruz L.J.;
RT   "Peptide neurotoxins from fish-hunting cone snails.";
RL   Science 230:1338-1343(1985).
RN   [3]
RP   SEQUENCE OF 46-70.
RX   MEDLINE=87299637; PubMed=2441741;
RA   Olivera B.M., Cruz L.J., de Santos V., Lechemint G.W., Griffin D.,
RA   Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,
RA   Rivier J.E.;
RT   "Neuronal calcium channel antagonists. Discrimination between calcium
RT   channel subtypes using omega-conotoxin from Conus magus venom.";
RL   Biochemistry 26:2086-2090(1987).
RN   [4]
RP   DISULFIDE BONDS.
RX   MEDLINE=87299637; PubMed=8537186;
RA   Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;
RT   "Determination of disulfide bridge pattern in omega-conopeptides.";
RL   Int. J. Pept. Protein Res. 46:320-325(1995).
RN   [5]
RP   SYNTHESIS, AND MUTAGENESIS OF LYS-47 AND TYR-58.
RX   PubMed=7826361;
RA   Kim J.I., Takahashi M., Ohtake A., Wakamiya A., Sato K.,
RT   "Tyr13 is essential for the activity of omega-conotoxin MVIIA and
RT   GVIA, specific N-type calcium channel blockers.";
RL   Biochem. Biophys. Res. Commun. 206:449-454(1995).
RN   [6]
RP   STRUCTURE BY NMR.
RX   MEDLINE=95367555; PubMed=7640281;
RA   Kohno T., Kim J.I., Kobayashi K., Kodera Y., Maeda T., Sato K.;
RT   "Three-dimensional structure in solution of the calcium channel
RT   blocker omega-conotoxin MVIIA.";
RL   Biochemistry 34:10256-10265(1995).
RN   [7]
RP   STRUCTURE BY NMR.
RX   PubMed=7656969;
RA   Basus V.J., Nadasdi L., Ramachandran J., Miljanich G.P.;
RT   "Solution structure of omega-conotoxin MVIIA using 2D NMR
RT   spectroscopy.";
RL   FEBS Lett. 370:163-169(1995).
RN   [8]
RP   STRUCTURE BY NMR.

RX   MEDLINE=97070382; PubMed=8913308;
RA   Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;
RT   "A consensus structure for omega-conotoxins with different
RT   selectivities for voltage-sensitive calcium channel subtypes.";
RL   J. Mol. Biol. 263:297-310(1996).
RN   [9]
RP   STRUCTURE BY NMR.
RX   PubMed=10373375;
RA   Nielsen K.J., Adams D., Thomas L., Bond T., Alewood P.F., Craik D.J.,
RA   Lewis R.J.;
RT   "Structure-activity relationships of omega-conotoxins MVIIA, MVIIC and
RT   14 loop splice hybrids at N and P/Q-type calcium channels.";
RL   J. Mol. Biol. 289:1405-1421(1999).
RN   [10]
RP   STRUCTURE BY NMR.
RX   PubMed=10747778;
RA   Atkinson R.A., Kieffer B., Dejaegere A., Sirockin F., Lefevre J.-F.;
RT   "Structural and dynamic characterization of omega-conotoxin MVIIA: the
RT   binding loop exhibits slow conformational exchange.";
RL   Biochemistry 39:3908-3919(2000).
RN   [11]
RP   STRUCTURE BY NMR.
RX   MEDLINE=21243158; PubMed=11344322;
RA   Goldenberg D.P., Koehn R.E., Gilbert D.E., Wagner G.;
RT   "Solution structure and backbone dynamics of an omega-conotoxin
RT   precursor.";
RL   Protein Sci. 10:538-550(2001).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC). This toxin
CC   blocks N-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- PHARMACEUTICAL: Is under clinical trial by Neurex. It blocks acute
CC   pain in patients who no longer obtain relief from opiate drugs. It
CC   is 100 to 1000 times more potent than morphine. By blocking
CC   calcium channels it disable nerves that transmit pain signals.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.
CC   -!- DATABASE: NAME=Ziconotide Source; NOTE=Web site on ziconotide;
CC   WWW="http://docmd.com/ziconotide/".
DR   PIR; C60133; C60133.
DR   PIR; JH0700; JH0700.
DR   PDB; 1OMG; 03-APR-96.
DR   PDB; 1MVI; 12-AUG-97.
DR   PDB; 1MVJ; 01-AUG-97.
DR   PDB; 1DW4; 01-MAR-00.
DR   PDB; 1DW5; 01-MAR-00.
DR   PDB; 1FEO; 23-AUG-00.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal; 3D-structure; Pharmaceutical.
FT   SIGNAL   1   22
FT   PROPEP   23   45
FT   PEPTIDE   46   70   OMEGA-CONOTOXIN MVIIA.
FT   DISULFID   46   61
FT   DISULFID   53   65
FT   DISULFID   60   70
FT   MOD_RES   70   70   AMIDATION (G-71 PROVIDE AMIDE GROUP).
FT   MUTAGEN   47   47   K->A: LITTLE DECREASE IN ACTIVITY.
FT   MUTAGEN   58   58   Y->A: STRONG DECREASE IN ACTIVITY.
SQ   SEQUENCE   71 AA; 7587 MW; E2A32725C81AF31D CRC64;

```
Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
          ||| | |||| |:  ||||||||||
Db   46 CKGKGAKCSRLMYDCCTGSCRSGKC 70
```

Query Match   79.1%; Score 121; DB 1; Length 71;
Best Local Similarity   76.0%; Pred. No. 2.3e-08;
Matches   19; Conservative   2; Mismatches   4; Indels   0; Gaps   0;

RESULT 3
CXOA_CONCT
ID   CXOA_CONCT   STANDARD;   PRT;   71 AA.

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AC   P58917;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin CVIA precursor.
OS   Conus catus (Cat cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A., SEQUENCE OF 46-70, AND SYNTHESIS.
RC   TISSUE=Venom duct, and Venom;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (By
CC       similarity). This toxin blocks N-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal.
FT   SIGNAL        1     22
FT   PROPEP       23     45
FT   PEPTIDE      46     70       OMEGA-CONOTOXIN CVIA.
FT   DISULFID     46     61       BY SIMILARITY.
FT   DISULFID     53     65       BY SIMILARITY.
FT   DISULFID     60     70       BY SIMILARITY.
FT   MOD_RES      70     70       AMIDATION (G-71 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   71 AA;  7665 MW;  B9D9C7C74996D001 CRC64;

Query Match             73.2%;      Score 112;  DB 1;   Length 71;
Best Local Similarity   68.0%;      Pred. No. 2.7e-07;
Matches   17;  Conservative   3;  Mismatches   5;  Indels   0;  Gaps   0;

Qy    1  CKGTGKPCSRIAYNCCTGSCRSGKC 25
         ||| | | | | :||::||||||||| |
Db   46  CKSTGASCRRTSYDCCTGSCRSGRC 70


RESULT 4
ID   CXOB_CONMA     STANDARD;      PRT;   25 AA.
AC   P05485;
DT   01-NOV-1988 (Rel. 09, Created)
DT   01-NOV-1988 (Rel. 09, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin MVIIB (SNX-159).
OS   Conus magus (Magus cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6492;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=87299637; PubMed=2441741;
RA   Olivera B.M., Cruz L.J., de Santos V., Lechemiant G.W., Griffin D.,
RA   Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,
RA   Rivier J.E.;
RT   "Neuronal calcium channel antagonists. Discrimination between calcium
RT   channel subtypes using omega-conotoxin from Conus magus venom.";
RL   Biochemistry 26:2086-2090(1987).
CC   -!- FUNCTION: Omega-conotoxin act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
DR   PIR; B34115; B34115.
DR   PIR; JH0701; JH0701.
DR   HSSP; P05484; 1MVI.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation.
FT   DISULFID      1     16
FT   DISULFID      8     20
FT   DISULFID     15     25
FT   MOD_RES      25     25       AMIDATION.

Query Match             68.6%;      Score 105;  DB 1;   Length 25;
Best Local Similarity   64.0%;      Pred. No. 8.4e-07;
Matches   16;  Conservative   2;  Mismatches   7;  Indels   0;  Gaps   0;

Qy    1  CKGTGKPCSRIAYNCCTGSCRSGKC 25
         ||| |  | |:|||||||| | ||
Db    1  CKGKGASCHRTSYDCCTGSCNRGKC 25


RESULT 5
ID   CXOC_CONCT     STANDARD;      PRT;   26 AA.
AC   P58919;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin CVIC.
OS   Conus catus (Cat cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE, AND SYNTHESIS.
RC   TISSUE=Venom;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (By
CC       similarity). This toxin blocks N-, P-, and Q-type calcium
CC       channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation.
FT   DISULFID      1     16
FT   DISULFID      8     20
FT   DISULFID     15     26
FT   MOD_RES      26     26       AMIDATION.
SQ   SEQUENCE   26 AA;  2790 MW;  56EFC38233SC4ABB CRC64;

Query Match             68.3%;      Score 104.5;  DB 1;   Length 26;
Best Local Similarity   65.4%;      Pred. No. 9.9e-07;
Matches   17;  Conservative   4;  Mismatches   4;  Indels   1;  Gaps   1;

Qy    1  CKGTGKPCSRIAYNCCTGSCC-RSGKC 25
         ||| | ||:|| ||||||| ||  ||
Db    1  CKGKGQSCSKLMYDCCTGSCSRRGKC 26


RESULT 6
ID   CXOB_CONCT     STANDARD;      PRT;   25 AA.
AC   P58918;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
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DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin CVIB.
OS   Conus catus (Cat cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE, AND SYNTHESIS.
RC   TISSUE=Venom;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (By
CC       similarity). This toxin blocks N-, P-, and Q-type calcium
CC       channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation.
FT   DISULFID      1     16       BY SIMILARITY.
FT   DISULFID      8     20       BY SIMILARITY.
FT   DISULFID     15     25       BY SIMILARITY.
FT   MOD_RES      25     25       AMIDATION.
SQ   SEQUENCE   25 AA;  2717 MW;  D41A9E5F5AFA9552 CRC64;

Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
          |||  |:||||||:|:| |||| | :|
Db    1 CKGKGASCRKYMYDCCRGSCRSGRC 25

Query Match             66.0%;  Score 101; DB 1; Length 25;
Best Local Similarity   60.0%;  Pred. No. 2.5e-06;
Matches 15; Conservative 3; Mismatches 7; Indels 0; Gaps 0;
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RESULT 7
CX07_CONCN
ID   CX07_CONCN          STANDARD;          PRT;          27 AA.
AC   P58916;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin CnVIIA.
OS   Conus consors (Singed cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101297;
RN   [1]
RP   SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.
RC   TISSUE=Venom;
RX   PubMed=11724570;
RA   Favreau P., Gilles N., Lamthanh H., Bournaud R., Shimahara T.,
RA   Bouet F., Laboute P., Letourneux Y., Menez A., Molgo J., Le Gall F.;
RT   "A new omega-conotoxin that targets N-type voltage-sensitive calcium
RT   channels with unusual specificity.";
RL   Biochemistry 40:14567-14575(2001).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC). This toxin
CC       blocks N-type calcium channels, but unexpectedly, does not show
CC       any blocking activity at amphibian neuromuscular junction. Causes
CC       shaking activity and, at higher doses, causes mild tremors when
CC       injected intracerebroventricularly into mice. Causes paralysis,
CC       and, at higher doses, causes death when injected intramuscularly
CC       into fish.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- MASS SPECTROMETRY: MW=2847.74; METHOD=Electrospray.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Hydroxylation; Amidation.
FT   BINDING      13     13       ESSENTIAL FOR CALCIUM CHANNEL BINDING (BY
FT                                SIMILARITY).
FT   DISULFID      1     16       BY SIMILARITY.
FT   DISULFID      8     20       BY SIMILARITY.
FT   DISULFID     15     27       BY SIMILARITY.
FT   MOD_RES       7      7       HYDROXYLATION.
FT   MOD_RES      27     27       AMIDATION.
SQ   SEQUENCE   27 AA;  2839 MW;  B9DEFD1491F2CB4A CRC64;

Qy    1 CKGTGKPCSRIAYNCCTGSCRS--GKC 25
          ||| |  ||   | ||| |||   |:|
Db    1 CKGKGAPCTRLMYDCCHGSCSSSKGRC 27

Query Match             64.7%;  Score 99; DB 1; Length 27;
Best Local Similarity   59.3%;  Pred. No. 4.6e-06;
Matches 16; Conservative 4; Mismatches 5; Indels 2; Gaps 1;
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RESULT 8
CXOC_CONMA
ID   CXOC_CONMA          STANDARD;          PRT;          29 AA.
AC   P37300;
DT   01-OCT-1994 (Rel. 30, Created)
DT   01-OCT-1994 (Rel. 30, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin MVIIC precursor (SNX-230) (Fragment).
OS   Conus magus (Magus cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6492;
RN   [1]
RP   STRUCTURE BY NMR.
RX   MEDLINE=95248539; PubMed=7731037;
RA   Farr-Jones S., Miljanich G.P., Nadasdi L., Ramachandran J.,
RA   Basus V.J.;
RT   "Solution structure of omega-conotoxin MVIIC, a high affinity ligand
RT   of P-type calcium channels, using 1H NMR spectroscopy and complete
RT   relaxation matrix analysis.";
RL   J. Mol. Biol. 248:106-124(1995).
RN   [2]
RP   SEQUENCE FROM N.A., AND SYNTHESIS.
RX   MEDLINE=92337922; PubMed=1352986;
RA   Hillyard D.R., Monje V.D., Mintz I.M., Bean B.P., Nadasdi L.,
RA   Ramachandran J., Miljanich G.P., Azimi-Zoonooz A., McIntosh J.M.,
RA   Cruz L.J., Imperial J.S., Olivera B.M.;
RT   "A new Conus peptide ligand for mammalian presynaptic Ca2+ channels.";
RL   Neuron 9:69-77(1992).
RN   [3]
RP   STRUCTURE BY NMR.
RX   PubMed=10373375;
RA   Nielsen K.J., Adams D., Thomas L., Bond T., Alewood P.F., Craik D.J.,
RA   Lewis R.J.;
RT   "Structure-activity relationships of omega-conotoxins MVIIA, MVIIC and
RT   14 loop splice hybrids at N and P/Q-type calcium channels.";
RL   J. Mol. Biol. 289:1405-1421(1999).
RN   [4]
RP   MUTAGENESIS OF TYR-15.
RX   PubMed=7677735;
RA   Kim J.I., Takahashi M., Martin-Moutot N., Seagar M.J., Ohtake A.,
RA   Sato K.;
RT   "Tyr13 is essential for the binding of omega-conotoxin MVIIC to the
RT   P/Q-type calcium channel.";
RL   Biochem. Biophys. Res. Commun. 214:305-309(1995).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC). This toxin
CC       blocks N-type calcium channels as well as types of high-threshold
CC       voltage-gated calcium channels resistant to both dihydropyridines
CC       and omega-conotoxin GVIA.
CC   -!- SUBCELLULAR LOCATION: Secreted.
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Left column

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CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
CC   -----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC   -----------------------------------------------------------------------
DR   EMBL; S40826; AAB22674.1; -.
DR   PIR; JH0699; JH0699.
DR   PDB; 1OMN; 01-DEC-95.
DR   PDB; 1CNN; 31-MAY-00.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Hydroxylation; Amidation; 3D-structure.
FT   NON_TER       1      1
FT   PROPEP       <1      2
FT   PEPTIDE       3     28       OMEGA-CONOTOXIN MVIIC.
FT   BINDING      15     15       ESSENTIAL FOR CALCIUM CHANNEL BINDING.
FT   DISULFID      3     18
FT   DISULFID     10     22
FT   DISULFID     17     28
FT   MOD_RES       9      9       HYDROXYLATION (PROBABLE).
FT   MOD_RES      28     28       AMIDATION (G-29 PROVIDE AMIDE GROUP).
FT   MOD_RES      15     15
FT   MUTAGEN      15     15       Y->A: HIGH DECREASE IN BINDING.
SQ   SEQUENCE   29 AA;  3071 MW;  AC7A69484747728A CRC64;

Query Match        64.4%;
Best Local Similarity   61.5%;           Score 98.5;  DB 1;  Length 29;
Matches   16;  Conservative    3;  Mismatches    6;  Indels    1;  Gaps    1;

Qy    1  CKGTGKPCSRIAYNCCTGSC-RSGKC  25
         |||| | | || |||||| | ||||
Db    3  CKGKGAPCRKTMYDCCSGSCGRGKC  28
```

```
RESULT 9
CXOD_CONMA
ID   CXOD_CONMA     STANDARD;     PRT;    29 AA.
AC   Q26350;
DT   15-DEC-1998 (Rel. 37, Created)
DT   15-DEC-1998 (Rel. 37, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin MVIID precursor (SNX-238) (Fragment).
OS   Conus magus (Magus cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6492;
RN   [1]
RP   STRUCTURE BY NMR.
RX   MEDLINE=94150815; PubMed=8107968;
RA   Monje V.D., Haack J.A., Naisbitt S.R., Miljanich G., Ramachandran J.,
RA   Nasdasdi L., Olivera B.M., Hillyard D.R., Gray W.R.;
RT   "A new Conus peptide ligand for Ca channel subtypes.";
RL   Neuropharmacology 32:1141-1149(1993).
RN   [2]
RP   STRUCTURE BY NMR.
RX   PubMed=9920728;
RA   Civera C., Vazquez A., Sevilla J.M., Bruix M., Gago F., Garcia A.G.,
RA   Sevilla P.;
RT   "Solution structure determination by two-dimensional 1H NMR of
RT   omega-conotoxin MVIID, a calcium channel blocker peptide.";
RL   Biochem. Biophys. Res. Commun. 254:32-35(1999).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC). This toxin
CC       blocks channels of the N-type as well as other types.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
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Right column

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CC   -----------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   -----------------------------------------------------------------------
DR   EMBL; S69322; AAB29902.1; -.
DR   HSSP; P05484; 1MVI.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation.
FT   NON_TER       1      1
FT   PROPEP       <1      3
FT   PEPTIDE       4     28       OMEGA-CONOTOXIN MVIID.
FT   DISULFID      4     19
FT   DISULFID     11     23
FT   DISULFID     18     28
FT   MOD_RES      28     28       AMIDATION (G-29 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   29 AA;  3104 MW;  9E04B2EA3779CB22 CRC64;

Query Match        61.4%;
Best Local Similarity   52.0%;           Score 94;  DB 1;  Length 29;
Matches   13;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy    1  CKGTGKPCSRIAYNCCTGSCGRSGKC  25
         |||||||| |||||||| |||| :||
Db    4  CQGRGASCRKTMYNCCSGSCGRNRGRC  28
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RESULT 10
CXOB_CONST
ID   CXOB_CONST     STANDARD;     PRT;    72 AA.
AC   P28881; Q9UB25;
DT   01-DEC-1992 (Rel. 24, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin SVIB precursor (SNX-183).
OS   Conus striatus (Striated cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6493;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom duct;
RX   MEDLINE=20037955; PubMed=10573284;
RA   Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT   "Conopeptides from Conus striatus and Conus textile by cDNA
RT   cloning.";
RL   Peptides 20:1139-1144(1999).
RN   [2]
RP   SEQUENCE OF 46-71, AND SYNTHESIS.
RX   MEDLINE=93003172; PubMed=1390774;
RA   Ramilo C., Zafaralla G.C., Nadasdi L., Hammerland L.G., Yoshikami D.,
RA   Gray W.R., Kristipati R., Ramachandran J., Miljanich G., Olivera B.M.,
RA   Cruz L.J.;
RT   "Novel alpha- and omega-conotoxins from Conus striatus venom.";
RL   Biochemistry 31:9919-9926(1992).
RN   [3]
RP   STRUCTURE BY NMR.
RX   MEDLINE=97070382; PubMed=8913308;
RA   Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;
RT   "A consensus structure for omega-conotoxins with different
RT   selectivities for voltage-sensitive calcium channel subtypes:
RT   comparison of MVIIA, SVIB and SNX-202.";
RL   J. Mol. Biol. 263:297-310(1996).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC). This toxin
CC       blocks N-, P-, and Q-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
```

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CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
CC   -------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   -------------------------------------------------------------------
DR   EMBL; AF146346; AAD31906.1; -.
DR   PIR; C44379; C44379.
DR   PDB; 1MVJ; 12-AUG-97.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal; 3D-structure.
FT   SIGNAL        1     22
FT   PROPEP       23     45
FT   PEPTIDE      46     71       OMEGA-CONOTOXIN SVIB.
FT   DISULFID     46     61
FT   DISULFID     53     65
FT   DISULFID     60     71
FT   MOD_RES      71     71       AMIDATION (G-72 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   72 AA;   7741 MW;   1F753546AAD39908 CRC64;

Qy       1  CKGTGKPCSRIAYNCCTGSC-RSGKC  25
            ||:|:||||||||||||||:||||||
Db      46  CKLKGSCRKTSYDCCSGSCGRSGKC  71
```

```
RESULT 11
ID   CXOD_CONCT     STANDARD;       PRT;   73 AA.
AC   P58920;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin CVID precursor.
OS   Conus catus (Cat cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=101291;
RN   [1]
RP   SEQUENCE FROM N.A., SEQUENCE OF 46-72, SYNTHESIS, AND STRUCTURE BY
RP   NMR.
RC   TISSUE=Venom duct, and Venom;
RX   PubMed=10938268;
RA   Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA   Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA   Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT   "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT   calcium channel subtypes.";
RL   J. Biol. Chem. 275:35335-35344(2000).
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC) (By
CC       similarity). This toxin blocks N-type calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Amidation; Signal.
FT   SIGNAL        1     22
FT   PROPEP       23     45
FT   PEPTIDE      46     72       OMEGA-CONOTOXIN CVID.
FT   DISULFID     46     61       BY SIMILARITY.
FT   DISULFID     53     65       BY SIMILARITY.
```

```
FT   DISULFID     60     72       BY SIMILARITY.
FT   MOD_RES      72     72       AMIDATION (G-73 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   73 AA;   7748 MW;   C4CEBD30C77DAEC3 CRC64;

Query Match             54.9%;  Score 84;  DB 1;  Length 73;
Best Local Similarity   48.1%;  Pred. No. 0.0006;
Matches  13;  Conservative   5;  Mismatches   7;  Indels   2;  Gaps   1;

Qy       1  CKGTGKPCSRIAYNCCTGSCRS--GKC  25
            ||:|:|| |||  |:|:|:|||    |:|
Db      46  CKSKGAKCSKLMYDCCSGSCGSSGTVGRC  72
```

```
RESULT 12
ID   CXO6_CONRA     STANDARD;       PRT;   27 AA.
AC   P58914;
DT   15-JUN-2002 (Rel. 41, Created)
DT   15-JUN-2002 (Rel. 41, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin RVIA.
OS   Conus radiatus (Rayed cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=61198;
RN   [1]
RP   SEQUENCE.
RA   Miljanich G.P., Bitner R.S., Bowersox S.S., Fox J.A., Valentino K.L.,
RA   Yamashiro D.J.;
RT   "Method of treating ischemia-related neuronal damage.";
RL   Patent number US5051403, 24-SEP-1991.
CC   -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC       and block voltage-sensitive calcium channels (VSCC).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC       FAMILY.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Hydroxylation.
FT   DISULFID      1     16
FT   DISULFID      8     19
FT   DISULFID     15     26
FT   MOD_RES       4      4       HYDROXYLATION.
FT   MOD_RES       7      7       HYDROXYLATION.
SQ   SEQUENCE   27 AA;   2887 MW;   F554C1F8A01A88AF CRC64;

Query Match             45.4%;  Score 69.5;  DB 1;  Length 27;
Best Local Similarity   51.9%;  Pred. No. 0.015;
Matches  14;  Conservative   3;  Mismatches   7;  Indels   3;  Gaps   2;

Qy       1  CKGTGKPCSRIAYNCCTGSCRS--GKC  25
            ||: ||||  ||:  ||:|| ||
Db       1  CKPGSPCRVSSYNCCS-SCKSYNKC  26
```

```
RESULT 13
ID   CXO7_CONGE     STANDARD;       PRT;   29 AA.
AC   P05483;
DT   01-NOV-1988 (Rel. 09, Created)
DT   01-NOV-1988 (Rel. 09, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin GVIIA/GVIIB (SNX-178).
OS   Conus geographus (Geography cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6491;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=86070213; PubMed=4071055;
RA   Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,
RA   Rivier J.E., de Santos V., Cruz L.J.;
RT   "Peptide neurotoxins from fish-hunting cone snails.";
```

RL   -1- Science 230:1338-1343(1985).
CC   -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC).
CC   -1- SUBCELLULAR LOCATION: Secreted.
CC   -1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -1- MISCELLANEOUS: THE SEQUENCE SHOWN IS THAT OF CONOTOXIN GVIA.
CC   -1- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.
DR   PIR; A43620; A43620.
DR   PIR; B43620; B43620.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Hydroxylation.
FT   MOD_RES   4   4   HYDROXYLATION.
FT   MOD_RES   7   7   HYDROXYLATION.
FT   DISULFID   1   16
FT   DISULFID   8   19
FT   DISULFID   15   26
FT   VARIANT   21   21   L -> S (IN GVIIB).
FT   SEQUENCE   29 AA; 3290 MW; 57307C69583FB1E7 CRC64;

Query Match   44.1%; Score 67.5; DB 1; Length 29;
Best Local Similarity   55.6%; Pred. No. 0.028;
Matches   15; Conservative   1; Mismatches   8; Indels   3; Gaps   2;

```
Qy    1 CKGTGKPCSRIAYNCCTGSC--RSGKC 25
          ||| ||||| ||||||| ||| ||
Db    1 CKSPGTPCSRGMRDCCT-SCLLYSNKC 26
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RESULT 14
ID   CX07_CONTE   STANDARD;   PRT;   26 AA.
AC   P56714;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin TxVII.
OS   Conus textile (cloth-of-gold cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6494;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=9626175; PubMed=8679638;
RA   Fainzilber M., Lodder J.C., van der Schors R.C., Li K.W., Yu Z.,
RA   Burlingame A.L., Geraerts W.P.M., Kits K.S.;
RT   "A novel hydrophobic omega-conotoxin blocks molluscan dihydropyridine-
RT   sensitive calcium channels.";
RL   Biochemistry 35:8748-8752(1996).
RN   [2]
RP   STRUCTURE BY NMR.
RX   MEDLINE=20552922; PubMed=11101291;
RA   Kobayashi K., Sasaki T., Sato K., Kohno T.;
RT   "Three-dimensional solution structure of omega-conotoxin TxVII, an
RT   L-type calcium channel blocker.";
RL   Biochemistry 39:14761-14767(2000).
CC   -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC). Specifically
CC   acts on L-type channels. It blocks molluscan dihydropyridine-
CC   sensitive calcium channels.
CC   -1- SUBCELLULAR LOCATION: Secreted.
CC   -1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -1- MASS SPECTROMETRY: MW=2832.23; METHOD=Electrospray.
CC   -1- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.
DR   PDB; 1F3K; 13-DEC-00.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   3D-structure.
FT   DISULFID   1   16
FT   DISULFID   8   20
FT   DISULFID   15   24
FT   SEQUENCE   26 AA; 2840 MW; 3AFEE2169866294 CRC64;

Query Match   40.8%; Score 62.5; DB 1; Length 26;
Best Local Similarity   44.0%; Pred. No. 0.1;
Matches   11; Conservative   3; Mismatches   10; Indels   1; Gaps   1;

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Qy    1 CKGTGKPCSRIAYNCCTGSCGRSGKC 25
          ||| ||| : ||||| ||
Db    1 CKQADEPCDVFSLDCCTGIC-LGVC 24
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RESULT 15
ID   CX06_CONGE   STANDARD;   PRT;   73 AA.
AC   P01522;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Omega-conotoxin GVIA precursor (Shaker peptide) (SNX-124) (Contains:
DE   Omega-conotoxin GVIB; Omega-conotoxin GVIC).
OS   Conus geographus (Geography cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6491;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=93069266; PubMed=1440648;
RA   Colledge C.J., Hunsperger J.P., Imperial J.S., Hillyard D.R.;
RT   "Precursor structure of omega-conotoxin GVIA determined from a cDNA
RT   clone.";
RL   Toxicon 30:1111-1116(1992).
RN   [2]
RP   SEQUENCE OF 46-73.
RX   MEDLINE=85072796; PubMed=6509012;
RA   Olivera B.M., McIntosh J.M., Cruz L.J., Luque F.A., Gray W.R.;
RT   "Purification and sequence of a presynaptic peptide toxin from Conus
RT   geographus venom.";
RL   Biochemistry 23:5087-5090(1984).
RN   [3]
RP   STRUCTURE BY NMR OF GVIA.
RX   MEDLINE=94047089; PubMed=8230223;
RA   Pallaghy P.K., Duggan B.M., Pennington M.W., Norton R.S.;
RT   "Three-dimensional structure in solution of the calcium channel
RT   blocker omega-conotoxin.";
RL   J. Mol. Biol. 234:405-420(1993).
RN   [4]
RP   STRUCTURE BY NMR OF GVIA.
RX   MEDLINE=93332945; PubMed=8338837;
RA   Davis J.H., Bradley E.K., Miljanich G.P., Nadasdi L.,
RA   Ramachandran J., Basus V.J.;
RT   "Solution structure of omega-conotoxin GVIA using 2-D NMR
RT   spectroscopy and relaxation matrix analysis.";
RL   Biochemistry 32:7396-7405(1993).
RN   [5]
RP   STRUCTURE BY NMR OF GVIA.
RX   MEDLINE=99248506; PubMed=10231724;
RA   Pallaghy P.K., Norton R.S.;
RT   "Refined solution structure of omega-conotoxin GVIA: Implications for
RT   calcium channel binding.";
RL   J. Pept. Res. 53:343-351(1999).
CC   -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC   and block voltage-sensitive calcium channels (VSCC).
CC   -1- SUBCELLULAR LOCATION: Secreted.
CC   -1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -1- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC   FAMILY.

```
CC   ------------------------------------------------------------------
DR   EMBL; M84612; AAA81590.1; -.
DR   PIR; A60133; NTKN6G.
DR   PIR; A44006; A44006.
DR   PDB; 2CCO; 15-JUL-98.
DR   PDB; 1OMC; 31-JAN-94.
DR   InterPro; IPR004214; Conotoxin.
DR   Pfam; PF02950; Conotoxin; 1.
KW   Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW   Hydroxylation; Amidation; Signal; 3D-structure.
FT   SIGNAL        1     22       POTENTIAL.
FT   PROPEP       23     45
FT   PEPTIDE      46     73       OMEGA-CONOTOXIN GVIB.
FT   PEPTIDE      46     72       OMEGA-CONOTOXIN GVIA.
FT   PEPTIDE      46     71       OMEGA-CONOTOXIN GVIC.
FT   MOD_RES      49     49       HYDROXYLATION.
FT   MOD_RES      55     55       HYDROXYLATION.
FT   MOD_RES      66     66       HYDROXYLATION.
FT   MOD_RES      72     72       AMIDATION (G-73 PROVIDE AMIDE GROUP) (IN
FT                                GVIA).
FT   DISULFID     46     61
FT   DISULFID     53     64
FT   DISULFID     60     71
FT   STRAND       47     47
FT   TURN         49     50
FT   STRAND       52     52
FT   TURN         55     58
FT   STRAND       60     60
FT   STRAND       64     65
FT   TURN         66     69
FT   STRAND       70     71
SQ   SEQUENCE    73 AA;  7851 MW;  51A8C8FA630F7175 CRC64;

Qy          1 CKGTGKPCSRIAYNCCTGSC 20
              || | | || :|||| ||
Db         46 CKSPGSSCSPSYNCCR-SC 64

Query Match             40.2%;  Score 61.5;  DB 1;  Length 73;
Best Local Similarity   55.0%;  Pred. No. 0.29;
Matches   11;  Conservative   1;  Mismatches   7;  Indels   1;  Gaps   1;
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Search completed: May 20, 2003, 15:39:00
Job time : 8.29167 secs

OM protein - protein search, using sw model

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                    GenCore version 5.1.4_p5_4578
                    Copyright (c) 1993 - 2003 Compugen Ltd.

Run on:             May 20, 2003, 15:41:00 ; Search time 17.9688 seconds
                                             (without alignments)
                                             137.979 Million cell updates/sec

Title:              US-09-910-082A-375
Perfect score:      153
Sequence:           1 CKGTGKPCSRIAYNCCTGSCRSGKC 25

Scoring table:      BLOSUM62
                    Gapop 10.0 , Gapext 0.5

Searched:           375593 seqs, 99172665 residues
Total number of hits satisfying chosen parameters: 375593

Post-processing:    Minimum Match 0%
                    Listing first 45 summaries

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Database :          Published_Applications_AA:*
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                   10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
                   11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
                   12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
                   13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
                   14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*
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Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match Length	DB	ID	Description
1	70	45.8	9	US-10-123-155-131	Sequence 131, App
2	69	45.1	9	US-10-123-155-231	Sequence 231, App
3	68	44.4	9	US-10-184-634-597	Sequence 597, App
4	68	44.4	9	US-10-184-634-597	Sequence 597, App
5	67	43.8	9	US-10-184-644-211	Sequence 211, App
6	67	43.8	9	US-10-184-644-211	Sequence 211, App
7	67	43.8	9	US-10-184-634-211	Sequence 211, App
8	67	43.8	9	US-10-184-634-33	Sequence 33, App
9	66.5	43.5	9	US-10-184-644-7	Sequence 7, App
10	66.5	43.5	9	US-10-184-634-7	Sequence 7, App
11	66	43.1	9	US-10-123-155-157	Sequence 157, App
12	66	43.1	9	US-10-123-155-9	Sequence 9, App
13	66	43.1	9	US-10-184-644-225	Sequence 225, App
14	66	43.1	9	US-10-184-634-225	Sequence 225, App
15	66	43.1	9	US-10-123-155-211	Sequence 211, App
16	65	42.5	9	US-10-123-155-67	Sequence 67, App
17	65	42.5	9	US-10-184-644-335	Sequence 335, App
18	65	42.5	9	US-10-184-634-335	Sequence 335, App
19	65	42.5	9	US-10-184-644-517	Sequence 517, App
20	65	42.5	9	US-10-184-634-517	Sequence 517, App
21	65	42.5	9	US-10-123-155-405	Sequence 405, App
22	64.5	42.2	9	US-10-184-644-29	Sequence 414, App
23	64.5	42.2	9	US-10-184-634-29	Sequence 29, App
24	64.5	42.2	9	US-10-123-155-543	Sequence 543, App
25	64	41.8	9	US-09-894-882-377	Sequence 377, App
26	64	41.8	9	US-09-894-882-383	Sequence 383, App
27	64	41.8	9	US-09-894-882-414	Sequence 414, App
28	64	41.8	9	US-09-894-882-425	Sequence 425, App
29	64	41.8	9	US-09-894-882-437	Sequence 437, App
30	64	41.8	9	US-09-894-882-45	Sequence 45, App
31	64	41.8	9	US-09-894-882-54	Sequence 54, App
32	64	41.8	9	US-09-894-882-71	Sequence 71, App
33	64	41.8	9	US-09-894-882-101	Sequence 101, App
34	64	41.8	9	US-09-894-882-122	Sequence 122, App
35	64	41.8	10	US-09-894-882-143	Sequence 143, App
36	64	41.8	9	US-10-184-634-353	Sequence 353, App
37	64	41.8	9	US-10-174-590-269	Sequence 269, App
38	64	41.8	9	US-10-176-758-269	Sequence 269, App
39	64	41.8	9	US-10-175-737-269	Sequence 269, App
40	64	41.8	9	US-10-175-447-269	Sequence 269, App
41	64	41.8	9	US-10-173-706-269	Sequence 269, App
42	64	41.8	9	US-10-175-738-269	Sequence 269, App
43	64	41.8	9	US-10-175-752-269	Sequence 269, App
44	64	41.8	9	US-10-176-482-269	Sequence 269, App
45	64	41.8	9	US-10-176-757-269	Sequence 269, App

ALIGNMENTS

RESULT 1
US-10-123-155-131

Sequence 131, Application US/10123155

Publication No. US20030068794A1

GENERAL INFORMATION:

APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen
APPLICANT: DeForge, Laura
APPLICANT: Desnoyers, Luc
APPLICANT: Filvaroff, Ellen
APPLICANT: Gao, Wei-Qiang
APPLICANT: Gerritsen, Mary E.
APPLICANT: Goddard, Audrey
APPLICANT: Godowski, Paul J.
APPLICANT: Gurney, Austin L.
APPLICANT: Sherwood, Steven
APPLICANT: Smith, Victoria
APPLICANT: Stewart, Timothy A.
APPLICANT: Tumas, Daniel
APPLICANT: Watanabe, Colin K
APPLICANT: Wood, William
APPLICANT: Zhang, Zemin

TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME

FILE REFERENCE: P3330R1C30

CURRENT APPLICATION NUMBER: US/10/123,155

CURRENT FILING DATE: 2002-04-15

PRIOR Application removed - See Palm or File Wrapper

NUMBER OF SEQ ID NOS: 550

SEQ ID NO 131

LENGTH: 1840

TYPE: DNA

ORGANISM: Homo Sapien

US-10-123-155-131

Query Match 45.8%; Score 70; DB 9; Length 1840;
Best Local Similarity 44.0%; Pred. No. 6.2;
Matches 11; Conservative 1; Mismatches 13; Indels 0; Gaps 0;

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Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
          | ||   |  |  |  ||| :|  ||
Db  241 CGGTGTGCGGACAGCCAGGCATGCC 265
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RESULT 2
US-10-123-155-231
; Sequence 231, Application US/10123155
; Publication No. US20030068794A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Beresini,Maureen
; APPLICANT: DeForge,Laura
; APPLICANT: Desnoyers,Luc
; APPLICANT: Filvaroff,Ellen
; APPLICANT: Gao,Wei-Qiang
; APPLICANT: Gerritsen,Mary E.
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Sherwood,Steven
; APPLICANT: Smith,Victoria
; APPLICANT: Stewart,Timothy A.
; APPLICANT: Tumas,Daniel
; APPLICANT: Watanabe,Colin K
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3330R1C30
; CURRENT APPLICATION NUMBER: US/10/123,155
; CURRENT FILING DATE: 2002-04-12
; PRIOR Application removed - See Palm or File Wrapper
; NUMBER OF SEQ ID NOS: 550
; SEQ ID NO 231
; LENGTH: 1058
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-123-155-231

  Query Match   45.1%; Score 69; DB 9; Length 1058;
  Best Local Similarity   48.0%; Pred. No. 5.1;
  Matches   12; Conservative   1; Mismatches   12; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
            | ||| | ||| |||||:|:| |
Db   238 CTGGGGGGCAGCAGCCCTGCCTGGAC 262

RESULT 3
US-10-184-644-597
; Sequence 597, Application US/10184644
; Publication No. US20030044930A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Chen,Jian
; APPLICANT: Desnoyers,Luc
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Pan,James
; APPLICANT: Smith,Victoria
; APPLICANT: Watanabe,Colin K.
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C227
; CURRENT APPLICATION NUMBER: US/10/184,644
; CURRENT FILING DATE: 2002-06-28
; Prior Application removed - See File Wrapper or Palm
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 597
; LENGTH: 2380
; TYPE: DNA
; ORGANISM: Homo Sapien

RESULT 4
US-10-184-634-597
; Sequence 597, Application US/10184634
; Publication No. US20030068684A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Chen,Jian
; APPLICANT: Desnoyers,Luc
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Pan,James
; APPLICANT: Smith,Victoria
; APPLICANT: Watanabe,Colin K.
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C217
; CURRENT APPLICATION NUMBER: US/10/184,634
; CURRENT FILING DATE: 2002-06-28
; Prior Application removed - See File Wrapper or Palm
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 597
; LENGTH: 2380
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-184-634-597

  Query Match   44.4%; Score 68; DB 9; Length 2380;
  Best Local Similarity   48.0%; Pred. No. 12;
  Matches   12; Conservative   1; Mismatches   12; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
            | ||| |
Db   932 CGGTGGCACAAAAACCTGACTGGAC 956

RESULT 5
US-10-184-644-211
; Sequence 211, Application US/10184644
; Publication No. US20030044930A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Chen,Jian
; APPLICANT: Desnoyers,Luc
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Pan,James
; APPLICANT: Smith,Victoria
; APPLICANT: Watanabe,Colin K.
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C227
; CURRENT APPLICATION NUMBER: US/10/184,644
; CURRENT FILING DATE: 2002-06-28
; Prior Application removed - See File Wrapper or Palm
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 211

US-10-184-644-597

  Query Match   44.4%; Score 68; DB 9; Length 2380;
  Best Local Similarity   48.0%; Pred. No. 12;
  Matches   12; Conservative   1; Mismatches   12; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
            | ||| |
Db   932 CGGTGGCACAAAAACCTGACTGGAC 956

; LENGTH: 708
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-184-644-211

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
    |||:| ||||:| :||
Db 338 CTCTGACCGCTTCTCCTGGCATGAC 362

Query Match 43.88%; Score 67; DB 9; Length 708;
Best Local Similarity 44.0%; Pred. No. 6;
Matches 11; Conservative 1; Mismatches 13; Indels 0; Gaps 0;

RESULT 6
US-10-184-634-211
; Sequence 211, Application US20030068684A1
; Publication No. US20030068684A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Chen,Jian
; APPLICANT: Desnoyers,Luc
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Pan,James
; APPLICANT: Smith,Victoria
; APPLICANT: Watanabe,Colin K.
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C217
; CURRENT APPLICATION NUMBER: US/10/184,634
; CURRENT FILING DATE: 2002-06-28
; Prior Application removed - See File Wrapper or Palm
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 211
; LENGTH: 708
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-184-634-211

RESULT 7
US-10-184-644-33
; Sequence 33, Application US/10184644
; Publication No. US20030044930A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Chen,Jian
; APPLICANT: Desnoyers,Luc
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Pan,James
; APPLICANT: Smith,Victoria
; APPLICANT: Watanabe,Colin K.
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C227
; CURRENT APPLICATION NUMBER: US/10/184,644
; CURRENT FILING DATE: 2002-06-28

; Prior Application removed - See File Wrapper or Palm
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 33
; LENGTH: 1413
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-184-644-33

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
    |||:| ||||:| :|||
Db 518 CTATGGCCAGCAAGCCAGCCACGAC 542

Query Match 43.88%; Score 67; DB 9; Length 1413;
Best Local Similarity 44.0%; Pred. No. 10;
Matches 11; Conservative 1; Mismatches 13; Indels 0; Gaps 0;

RESULT 8
US-10-184-634-33
; Sequence 33, Application US20030068684A1
; Publication No. US20030068684A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Chen,Jian
; APPLICANT: Desnoyers,Luc
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Pan,James
; APPLICANT: Smith,Victoria
; APPLICANT: Watanabe,Colin K.
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C217
; CURRENT APPLICATION NUMBER: US/10/184,634
; CURRENT FILING DATE: 2002-06-28

RESULT 9
US-10-184-644-7
; Sequence 7, Application US/10184644
; Publication No. US20030044930A1
; GENERAL INFORMATION:
; APPLICANT: Baker,Kevin P.
; APPLICANT: Chen,Jian
; APPLICANT: Desnoyers,Luc
; APPLICANT: Goddard,Audrey
; APPLICANT: Godowski,Paul J.
; APPLICANT: Gurney,Austin L.
; APPLICANT: Pan,James
; APPLICANT: Smith,Victoria
; APPLICANT: Watanabe,Colin K.
; APPLICANT: Wood,William I.
; APPLICANT: Zhang,Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME

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FILE REFERENCE: P3430R1C227
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 7
    LENGTH: 2886
    TYPE: DNA
    ORGANISM: Homo Sapien
US-10-184-644-7

Query Match        43.5%;  Score 66.5;  DB 9;  Length 2886;
Best Local Similarity   37.5%;  Pred. No. 21;
Matches  12;  Conservative  3;  Mismatches  10;  Indels  7;  Gaps  1;

Qy      1 CKGTGKPCSRIAYNCCTGSC------------RSGKC 25
            |||| |:       ||||||            :| |
Db    640 CAGTGGGGCTTCCCTCCTGACTTTATTTTGTC 671
```

```
RESULT 10
US-10-184-634-7
; Sequence 7, Application US/10184634
; Publication No. US20030068684A1
; GENERAL INFORMATION:
;  APPLICANT: Baker,Kevin P.
;  APPLICANT: Chen,Jian
;  APPLICANT: Desnoyers,Luc
;  APPLICANT: Goddard,Audrey
;  APPLICANT: Godowski,Paul J.
;  APPLICANT: Gurney,Austin L.
;  APPLICANT: Pan,James
;  APPLICANT: Smith,Victoria
;  APPLICANT: Watanabe,Colin K.
;  APPLICANT: Wood,William I.
;  APPLICANT: Zhang,Zemin
;  TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
;  TITLE OF INVENTION: ACIDS ENCODING THE SAME
;  FILE REFERENCE: P3430R1C217
;  CURRENT APPLICATION NUMBER: US/10/184,634
;  CURRENT FILING DATE: 2002-06-28
;  Prior Application removed - See File Wrapper or Palm
;  NUMBER OF SEQ ID NOS: 612
SEQ ID NO 7
    LENGTH: 2886
    TYPE: DNA
    ORGANISM: Homo Sapien
US-10-184-634-7

Query Match        43.5%;  Score 66.5;  DB 9;  Length 2886;
Best Local Similarity   37.5%;  Pred. No. 21;
Matches  12;  Conservative  3;  Mismatches  10;  Indels  7;  Gaps  1;

Qy      1 CKGTGKPCSRIAYNCCTGSC------------RSGKC 25
            |||| |:       ||||||            :| |
Db    640 CAGTGGGGCTTCCCTCCTGACTTTATTTTGTC 671
```

```
RESULT 11
US-10-123-155-157
; Sequence 157, Application US/10123155
; Publication No. US20030068794A1
; GENERAL INFORMATION:
;  APPLICANT: Baker,Kevin P.
;  APPLICANT: Beresini,Maureen
;  APPLICANT: DeForge,Laura
;  APPLICANT: Desnoyers,Luc
;  APPLICANT: Filvaroff,Ellen
;  APPLICANT: Gao,Wei-Qiang
;  APPLICANT: Gerritsen,Mary E.
;  APPLICANT: Goddard,Audrey
;  APPLICANT: Godowski,Paul J.
;  APPLICANT: Gurney,Austin L.
```

```
APPLICANT: Sherwood,Steven
APPLICANT: Smith,Victoria
APPLICANT: Stewart,Timothy A.
APPLICANT: Tumas,Daniel
APPLICANT: Watanabe,Colin K
APPLICANT: Wood,William
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C30
CURRENT APPLICATION NUMBER: US/10/123,155
CURRENT FILING DATE: 2002-04-15
Prior Application removed - See Palm or File Wrapper
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 157
    LENGTH: 1328
    TYPE: DNA
    ORGANISM: Homo Sapien
US-10-123-155-157

Query Match        43.1%;  Score 66;  DB 9;  Length 1328;
Best Local Similarity   52.0%;  Pred. No. 13;
Matches  13;  Conservative  0;  Mismatches  10;  Indels  2;  Gaps  1;

Qy      1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
            |||| |:    | |||||  :| |
Db    520 CTGTGAGCCGCCCAACCCTGGCC--GAC 542
```

```
RESULT 12
US-10-123-155-9
; Sequence 9, Application US/10123155
; Publication No. US20030068794A1
; GENERAL INFORMATION:
;  APPLICANT: Baker,Kevin P.
;  APPLICANT: Beresini,Maureen
;  APPLICANT: DeForge,Laura
;  APPLICANT: Desnoyers,Luc
;  APPLICANT: Filvaroff,Ellen
;  APPLICANT: Gao,Wei-Qiang
;  APPLICANT: Gerritsen,Mary E.
;  APPLICANT: Goddard,Audrey
;  APPLICANT: Godowski,Paul J.
;  APPLICANT: Gurney,Austin L.
;  APPLICANT: Sherwood,Steven
;  APPLICANT: Smith,Victoria
;  APPLICANT: Stewart,Timothy A.
;  APPLICANT: Tumas,Daniel
;  APPLICANT: Watanabe,Colin K
;  APPLICANT: Wood,William
;  APPLICANT: Zhang, Zemin
;  TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
;  TITLE OF INVENTION: ACIDS ENCODING THE SAME
;  FILE REFERENCE: P3330R1C30
;  CURRENT APPLICATION NUMBER: US/10/123,155
;  CURRENT FILING DATE: 2002-04-15
;  Prior Application removed - See Palm or File Wrapper
;  NUMBER OF SEQ ID NOS: 550
SEQ ID NO 9
    LENGTH: 2276
    TYPE: DNA
    ORGANISM: Homo Sapien
US-10-123-155-9

Query Match        43.1%;  Score 66;  DB 9;  Length 2276;
Best Local Similarity   44.0%;  Pred. No. 20;
Matches  11;  Conservative  2;  Mismatches  12;  Indels  0;  Gaps  0;

Qy      1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
            |||| |:    ||     :| |
Db    816 CAGAGGCCATCAAGCATGCCAAGGC 840
```

```
APPLICANT: Goddard,Audrey
APPLICANT: Godowski,Paul J.
APPLICANT: Gurney,Austin L.
```

RESULT 13
US-10-184-644-225
; Sequence 225, Application US/10184644
; Publication No. US20030044930A1
; GENERAL INFORMATION:
; APPLICANT: Baker, Kevin P.
; APPLICANT: Chen, Jian
; APPLICANT: Desnoyers, Luc
; APPLICANT: Godowski, Paul J.
; APPLICANT: Goddard, Audrey
; APPLICANT: Gurney, Austin L.
; APPLICANT: Pan, James
; APPLICANT: Smith, Victoria
; APPLICANT: Watanabe, Colin K.
; APPLICANT: Wood, William I.
; APPLICANT: Zhang, Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C227
; CURRENT APPLICATION NUMBER: US/10/184,644
; CURRENT FILING DATE: 2002-06-28
; PRIOR APPLICATION NUMBER:
; Prior Application removed - See File Wrapper or Palm
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 225
;   LENGTH: 2692
;   TYPE: DNA
;   ORGANISM: Homo Sapien
US-10-184-644-225

Query Match   43.1%; Score 66; DB 9; Length 2692;
Best Local Similarity   47.8%; Pred. No. 22;
Matches   11; Conservative   2; Mismatches   10; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSG 23
               | ||| |: | ||||:|:| |
Db   2024 CTGTGTGCATGTTCCCTGTCTGG 2046

RESULT 14
US-10-184-634-225
; Sequence 225, Application US/10184634
; Publication No. US20030068684A1
; GENERAL INFORMATION:
; APPLICANT: Baker, Kevin P.
; APPLICANT: Chen, Jian
; APPLICANT: Desnoyers, Luc
; APPLICANT: Godowski, Paul J.
; APPLICANT: Goddard, Audrey
; APPLICANT: Gurney, Austin L.
; APPLICANT: Pan, James
; APPLICANT: Smith, Victoria
; APPLICANT: Watanabe, Colin K.
; APPLICANT: Wood, William I.
; APPLICANT: Zhang, Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3430R1C217
; CURRENT APPLICATION NUMBER: US/10/184,634
; CURRENT FILING DATE: 2002-06-28
; PRIOR APPLICATION NUMBER:
; Prior Application removed - See File Wrapper or Palm
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 225
;   LENGTH: 2692
;   TYPE: DNA
;   ORGANISM: Homo Sapien
US-10-184-634-225

Query Match   43.1%; Score 66; DB 9; Length 2692;
Best Local Similarity   47.8%; Pred. No. 22;
Matches   11; Conservative   2; Mismatches   10; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSG 23
               | ||| |: | ||||:|:| |
Db   2024 CTGTGTGCATGTTCCCTGTCTGG 2046

RESULT 15
US-10-123-155-211
; Sequence 211, Application US/10123155
; Publication No. US20030068794A1
; GENERAL INFORMATION:
; APPLICANT: Baker, Kevin P.
; APPLICANT: Beresini, Maureen
; APPLICANT: DeForge, Laura
; APPLICANT: Desnoyers, Luc
; APPLICANT: Filvaroff, Ellen
; APPLICANT: Gao, Wei-Qiang
; APPLICANT: Gerritsen, Mary E.
; APPLICANT: Goddard, Audrey
; APPLICANT: Godowski, Paul J.
; APPLICANT: Gurney, Austin L.
; APPLICANT: Sherwood, Steven
; APPLICANT: Smith, Victoria
; APPLICANT: Stewart, Timothy A.
; APPLICANT: Tumas, Daniel
; APPLICANT: Watanabe, Colin K
; APPLICANT: Wood, William
; APPLICANT: Zhang, Zemin
; TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
; TITLE OF INVENTION: ACIDS ENCODING THE SAME
; FILE REFERENCE: P3330R1C30
; CURRENT APPLICATION NUMBER: US/10/123,155
; CURRENT FILING DATE: 2002-04-15
; PRIOR APPLICATION NUMBER:
; Prior Application removed - See Palm or File Wrapper
; NUMBER OF SEQ ID NOS: 550
; SEQ ID NO 211
;   LENGTH: 3266
;   TYPE: DNA
;   ORGANISM: Homo Sapien
US-10-123-155-211

Query Match   43.1%; Score 66; DB 9; Length 3266;
Best Local Similarity   48.0%; Pred. No. 26;
Matches   12; Conservative   2; Mismatches   11; Indels   0; Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
               | ||| |: | ||||:|:| ||| :
Db   2771 CCGGGCCCTCTTATGCCTGGCCAGCC 2795

Search completed: May 20, 2003, 15:53:53
Job time : 19.9688 secs

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OM protein - protein search, using sw model

GenCore version 5.1.4_p5_4578
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Run on: May 20, 2003, 15:36:46 ; Search time 9.85583 Seconds
(without alignments)
74.332 Million cell updates/sec

Title: US-09-910-082A-375
Perfect score: 153
Sequence: 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25

Scoring table: BLOSUM62
                Gapop 10.0 , Gapext 0.5

searched: 262574 seqs, 29422922 residues

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
                 Maximum Match 100%
                 Listing first 45 summaries

Database : Issued_Patents_AA:*
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            2: /cgn2_6/ptodata/1/1aa/5B_COMB.pep:*
            3: /cgn2_6/ptodata/1/1aa/6A_COMB.pep:*
            4: /cgn2_6/ptodata/1/1aa/6B_COMB.pep:*
            5: /cgn2_6/ptodata/1/1aa/PCTUS_COMB.pep:*
            6: /cgn2_6/ptodata/1/1aa/backfiles1.pep:*

Total number of hits satisfying chosen parameters: 262574

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	126	82.4	25	1	US-08-496-847-35	Sequence 35, Appl
2	126	82.4	25	2	US-08-965-918-35	Sequence 35, Appl
3	126	82.4	25	3	US-08-613-400A-35	Sequence 35, Appl
4	123	80.4	25	1	US-08-049-794-12	Sequence 12, Appl
5	123	80.4	25	1	US-08-496-847-12	Sequence 12, Appl
6	123	80.4	25	1	US-08-742-774-12	Sequence 12, Appl
7	123	80.4	25	1	US-08-675-354-12	Sequence 12, Appl
8	123	80.4	25	2	US-08-965-918-12	Sequence 12, Appl
9	123	80.4	25	2	US-09-138-439-12	Sequence 12, Appl
10	123	80.4	25	3	US-08-613-400A-12	Sequence 12, Appl
11	123	80.4	25	4	US-09-298-017-12	Sequence 12, Appl
12	123	80.4	25	3	US-09-392-979A-12	Sequence 12, Appl
13	122	79.7	25	1	US-07-789-913-9	Sequence 9, Appl
14	122	79.7	25	1	US-07-789-913-12	Sequence 12, Appl
15	122	79.7	25	1	US-08-049-794-9	Sequence 9, Appl
16	122	79.7	25	1	US-08-496-847-9	Sequence 9, Appl
17	122	79.7	25	1	US-08-742-774-36	Sequence 36, Appl
18	122	79.7	25	1	US-08-496-847-36	Sequence 36, Appl
19	122	79.7	25	1	US-08-742-774-9	Sequence 9, Appl
20	122	79.7	25	1	US-08-496-847-17	Sequence 17, Appl
21	122	79.7	25	1	US-08-742-774-17	Sequence 17, Appl
22	122	79.7	25	1	US-08-675-354-9	Sequence 9, Appl
23	122	79.7	25	1	US-08-675-354-17	Sequence 17, Appl
24	122	79.7	25	2	US-08-965-918-9	Sequence 9, Appl
25	122	79.7	25	2	US-08-965-918-17	Sequence 17, Appl
26	122	79.7	25	2	US-08-965-918-36	Sequence 36, Appl
27	122	79.7	25	2	US-09-138-439-9	Sequence 9, Appl
28	122	79.7	25	2	US-09-138-439-17	Sequence 17, Appl
29	122	79.7	25	3	US-08-613-400A-9	Sequence 9, Appl
30	122	79.7	25	3	US-08-613-400A-17	Sequence 17, Appl
31	122	79.7	25	3	US-08-613-400A-36	Sequence 36, Appl
32	122	79.7	25	2	US-09-298-017-9	Sequence 9, Appl
33	122	79.7	25	4	US-09-298-017-17	Sequence 17, Appl
34	122	79.7	25	4	US-09-392-979A-9	Sequence 9, Appl
35	122	79.7	25	4	US-09-392-979A-17	Sequence 17, Appl
36	122	79.7	25	1	US-08-049-794-11	Sequence 11, Appl
37	122	79.7	25	1	US-08-742-774-11	Sequence 11, Appl
38	122	79.7	25	1	US-08-496-847-11	Sequence 11, Appl
39	122	79.7	26	1	US-08-675-354-11	Sequence 11, Appl
40	122	79.7	26	2	US-08-965-918-11	Sequence 11, Appl
41	122	79.7	26	2	US-09-138-439-11	Sequence 11, Appl
42	122	79.7	26	3	US-08-613-400A-11	Sequence 11, Appl
43	122	79.7	26	4	US-09-298-017-11	Sequence 11, Appl
44	122	79.7	26	4	US-09-392-979A-11	Sequence 11, Appl
45	121	79.1	25	1	US-07-789-913-1	Sequence 1, Appl

ALIGNMENTS

RESULT 1
US-08-496-847-35
Sequence 35, Application US/08496847
Patent No. 5795864
GENERAL INFORMATION:
  APPLICANT: Amstutz, Gary A.
  APPLICANT: Bowersox, Stephen S.
  APPLICANT: Gohil, Kishorchandra
  APPLICANT: Adriaenssens, Peter I.
  APPLICANT: Kristipati, Ramasharma
  TITLE OF INVENTION: METHODS AND
  FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN
  NUMBER OF SEQUENCES: 36
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Dehlinger & Associates
    STREET: 350 Cambridge Avenue, Suite 250
    CITY: Palo Alto
    STATE: CA
    COUNTRY: US
    ZIP: 94306-1546
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Diskette
    COMPUTER: IBM Compatible
    OPERATING SYSTEM: DOS
    SOFTWARE: FastSEQ for Windows Version 2.0
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/496,847
    FILING DATE: 27-JUN-1995
    CLASSIFICATION: 514
  ATTORNEY/AGENT INFORMATION:
    NAME: Stratford, Carol A
    REGISTRATION NUMBER: 34,444
    REFERENCE/DOCKET NUMBER: 5865-0009.31
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: 650-324-0880
    TELEFAX: 650-324-0960
INFORMATION FOR SEQ ID NO: 35:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 25 amino acids
    TYPE: amino acid
    TOPOLOGY: linear
  MOLECULE TYPE: peptide
  HYPOTHETICAL: NO
  ORIGINAL SOURCE:
    INDIVIDUAL ISOLATE: SNX-273, FIGURE 2

US-08-496-847-35

Query Match   82.4%; Score 126; DB 1; Length 25;
Best Local Similarity   80.0%; Pred. No..3e-07;
Matches   20; Conservative   2; Mismatches   3; Indels   0; Gaps   0;

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Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        ||| | |||:||:||||||||||||
Db    1 CKGKGAKCSRLAYDCCTGSCRSGKC 25

RESULT 2
US-08-965-918-35
Sequence 35, Application US/08965918
Patent No. 5891849
GENERAL INFORMATION:
  APPLICANT: Amstutz, Gary A.
  APPLICANT: Bowersox, Stephen S.
  APPLICANT: Gohil, Kishorchandra
  APPLICANT: Adriaenssens, Peter I.
  APPLICANT: Kristipati, Ramasharma
  TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING
  TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN
  NUMBER OF SEQUENCES: 36
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Dehlinger & Associates
    STREET: 350 Cambridge Avenue, Suite 250
    CITY: Palo Alto
    STATE: CA
    COUNTRY: US
    ZIP: 94306-1546
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Diskette
    COMPUTER: IBM Compatible
    OPERATING SYSTEM: DOS
    SOFTWARE: FastSEQ for Windows Version 2.0
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/965,918
    FILING DATE: 07-NOV-1997
    CLASSIFICATION: 514
  ATTORNEY/AGENT INFORMATION:
    NAME: Mohr, Judy M.
    REGISTRATION NUMBER: 38,563
    REFERENCE/DOCKET NUMBER: 5865-0009.34
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: 650-324-0880
    TELEFAX: 650-324-0960
  INFORMATION FOR SEQ ID NO: 35:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 25 amino acids
    TYPE: amino acid
    TOPOLOGY: linear
    MOLECULE TYPE: peptide
    HYPOTHETICAL: NO
    ORIGINAL SOURCE:
    INDIVIDUAL ISOLATE: SNX-273, FIGURE 2
-08-965-918-35

Query Match           82.4%;  Score 126;  DB 2;  Length 25;
Best Local Similarity 80.0%;  Pred. No. 3e-07;
Matches   20;  Conservative  2;  Mismatches  3;  Indels  0;  Gaps  0;

Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        ||| | |||:||:||||||||||||
Db    1 CKGKGAKCSRLAYDCCTGSCRSGKC 25

RESULT 3
US-08-613-400A-35
Sequence 35, Application US/08613400A
Patent No. 6054429
GENERAL INFORMATION:
  APPLICANT: Bowersox, S. Scott
  APPLICANT: Gadbois, Theresa
  APPLICANT: Pettus, Mark, R.
  APPLICANT: Luther, Robert, R.
  TITLE OF INVENTION: IMPROVED EPIDURAL
  TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA
```

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  NUMBER OF SEQUENCES: 36
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Dehlinger & Associates
    STREET: 350 Cambridge Avenue, Suite 250
    CITY: Palo Alto
    STATE: CA
    COUNTRY: US
    ZIP: 94306-1546
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Diskette
    COMPUTER: IBM Compatible
    OPERATING SYSTEM: DOS
    SOFTWARE: FastSEQ for Windows Version 2.0
  CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/613,400A
    FILING DATE: 08-MAR-1996
    CLASSIFICATION: 514
  PRIOR APPLICATION DATA:
    APPLICATION NUMBER:
    FILING DATE:
  ATTORNEY/AGENT INFORMATION:
    NAME: Stratford, Carol A.
    REGISTRATION NUMBER: 34,444
    REFERENCE/DOCKET NUMBER: 5865-0019
  TELECOMMUNICATION INFORMATION:
    TELEPHONE: 650-324-0880
    TELEFAX: 650-324-0960
  INFORMATION FOR SEQ ID NO: 35:
  SEQUENCE CHARACTERISTICS:
    LENGTH: 25 amino acids
    TYPE: amino acid
    TOPOLOGY: linear
    MOLECULE TYPE: protein
    HYPOTHETICAL: NO
    ORIGINAL SOURCE:
    INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 2
US-08-613-400A-35

Query Match           82.4%;  Score 126;  DB 3;  Length 25;
Best Local Similarity 80.0%;  Pred. No. 3e-07;
Matches   20;  Conservative  2;  Mismatches  3;  Indels  0;  Gaps  0;

Qy    1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        ||| | |||:||:||||||||||||
Db    1 CKGKGAKCSRLAYDCCTGSCRSGKC 25

RESULT 4
US-08-049-794-12
Sequence 12, Application US/08049794
Patent No. 5587454
GENERAL INFORMATION:
  APPLICANT: JUSTICE, ALAN
  APPLICANT: SINGH, TEJINDER
  APPLICANT: GOHIL, KISHOR C
  APPLICANT: VALENTINO, KAREN L
  APPLICANT: MILJANICH, GEORGE P
  TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
  TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
  NUMBER OF SEQUENCES: 34
  CORRESPONDENCE ADDRESS:
    ADDRESSEE: Law Offices of Peter Dehlinger
    STREET: 350 Cambridge Avenue, Suite 300
    CITY: Palo Alto
    STATE: CA
    COUNTRY: USA
    ZIP: 94306
  COMPUTER READABLE FORM:
    MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC Compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: Patentin Release #1.0, Version #1.25
  CURRENT APPLICATION DATA:
```

APPLICATION NUMBER: US/08/049,794
FILING DATE: 19930415
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/814,759
FILING DATE: 30-DEC-1991
ATTORNEY/AGENT INFORMATION:
NAME: Stratford, Carol A.
REGISTRATION NUMBER: 34,444
REFERENCE/DOCKET NUMBER: 5865-0009.30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 324-0880
TELEFAX: (415) 324-0960
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 25 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: NO
ORIGINAL SOURCE:
INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
FEATURE:
NAME/KEY: Modified-site
LOCATION: 12
OTHER INFORMATION: /note= "where X is Nle"
US-08-049-794-12

Query Match   80.4%;   Score 123;   DB 1;   Length 25;
Best Local Similarity   76.0%;   Pred. No. 6e-07;
Matches 19;   Conservative 2;   Mismatches 4;   Indels 0;   Gaps 0;

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       ||| |||| ||||:|:||||||||||
Db 1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

RESULT 5
US-08-496-847-12
Sequence 12, Application US/08496847
Patent No. 5795864
GENERAL INFORMATION:
APPLICANT: Amstutz, Gary A.
APPLICANT: Bowersox, Stephen S.
APPLICANT: Gohil, Kishorchandra
APPLICANT: Adriaenssens, Peter I.
APPLICANT: Kristipati, Ramasharma
TITLE OF INVENTION: METHODS AND
TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN
NUMBER OF SEQUENCES: 36
CORRESPONDENCE ADDRESS:
ADDRESSEE: Dehlinger & Associates
STREET: 350 Cambridge Avenue, Suite 250
CITY: Palo Alto
STATE: CA
COUNTRY: US
ZIP: 94306-1546
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/496,847
FILING DATE: 27-JUN-1995
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Stratford, Carol A.
REGISTRATION NUMBER: 34,444
REFERENCE/DOCKET NUMBER: 5865-0009.31
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-324-0880
TELEFAX: 650-324-0960

INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 25 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: NO
ORIGINAL SOURCE:
INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
FEATURE:
NAME/KEY: Modified-site
LOCATION: 12
OTHER INFORMATION: /note= "where X is Nle"
US-08-496-847-12

Query Match   80.4%;   Score 123;   DB 1;   Length 25;
Best Local Similarity   76.0%;   Pred. No. 6e-07;
Matches 19;   Conservative 2;   Mismatches 4;   Indels 0;   Gaps 0;

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       ||| |||| ||||:|:||||||||||
Db 1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

RESULT 6
US-08-742-774-12
Sequence 12, Application US/08742774
Patent No. 5824645
GENERAL INFORMATION:
APPLICANT: JUSTICE, ALAN
APPLICANT: SINGH, TEJINDER
APPLICANT: GOHIL, KISHOR C
APPLICANT: VALENTINO, KAREN L
APPLICANT: MILJANICH, GEORGE P
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
NUMBER OF SEQUENCES: 34
CORRESPONDENCE ADDRESS:
ADDRESSEE: Law Offices of Peter Dehlinger
STREET: 350 Cambridge Avenue, Suite 300
CITY: Palo Alto
STATE: CA
COUNTRY: USA
ZIP: 94306
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/742,774
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/675,354
FILING DATE: 03-JUL-1996
APPLICATION NUMBER: US/08/049,794
FILING DATE: 1993-APR-15
APPLICATION NUMBER: US 07/814,759
FILING DATE: 30-DEC-1991
ATTORNEY/AGENT INFORMATION:
NAME: Stratford, Carol A.
REGISTRATION NUMBER: 34,444
REFERENCE/DOCKET NUMBER: 5865-0009.30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 324-0880
TELEFAX: (415) 324-0960
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 25 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein

; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 12
; OTHER INFORMATION: /note= "where X is Nle"
US-08-742-774-12

Query Match   80.4%; Score 123; DB 2; Length 25;
Best Local Similarity 76.0%; Pred. No. 6e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

US-08-742-774-12

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       ||| | ||: | :||||||||||||
Db   1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

RESULT 7
US-08-675-354-12
Sequence 12, Application US/08675354
Patent No. 5859186
GENERAL INFORMATION:
   APPLICANT: JUSTICE, ALAN
   APPLICANT: SINGH, TEJINDER
   APPLICANT: GOHIL, KISHOR C
   APPLICANT: VALENTINO, KAREN L
   APPLICANT: MILJANICH, GEORGE P
   TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
   TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
   NUMBER OF SEQUENCES: 34
   CORRESPONDENCE ADDRESS:
      ADDRESSEE: Law Offices of Peter Dehlinger
      STREET: 350 Cambridge Avenue, Suite 300
      CITY: Palo Alto
      STATE: CA
      COUNTRY: USA
      ZIP: 94306
   COMPUTER READABLE FORM:
      MEDIUM TYPE: Floppy disk
      COMPUTER: IBM PC compatible
      OPERATING SYSTEM: PC-DOS/MS-DOS
      SOFTWARE: Patentin Release #1.0, Version #1.25
   CURRENT APPLICATION DATA:
      APPLICATION NUMBER: US/08/675,354
      FILING DATE: 03-JUL-1996
      CLASSIFICATION: 530
   PRIOR APPLICATION DATA:
      APPLICATION NUMBER: US/08/049,794
      FILING DATE: 1993-APR-15
      APPLICATION NUMBER: US 07/814,759
      FILING DATE: 30-DEC-1991
   ATTORNEY/AGENT INFORMATION:
      NAME: Stratford, Carol A.
      REGISTRATION NUMBER: 34,444
      REFERENCE/DOCKET NUMBER: 5865-0009.30
   TELECOMMUNICATION INFORMATION:
      TELEPHONE: (415) 324-0880
      TELEFAX: (415) 324-0960
INFORMATION FOR SEQ ID NO: 12:
   SEQUENCE CHARACTERISTICS:
      LENGTH: 25 amino acids
      TYPE: amino acid
      TOPOLOGY: linear
   MOLECULE TYPE: protein
   HYPOTHETICAL: NO
   ORIGINAL SOURCE:
      INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
   FEATURE:
      NAME/KEY: Modified-site
      LOCATION: 12
      OTHER INFORMATION: /note= "where X is Nle"
US-08-675-354-12

Query Match   80.4%; Score 123; DB 2; Length 25;
Best Local Similarity 76.0%; Pred. No. 6e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       ||| | ||: | :||||||||||||
Db   1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

RESULT 8
US-08-965-918-12
Sequence 12, Application US/08965918
Patent No. 5891849
GENERAL INFORMATION:
   APPLICANT: Amstutz, Gary A.
   APPLICANT: Bowersox, Stephen S.
   APPLICANT: Gohil, Kishorchandra
   APPLICANT: Adriaenssens, Peter I.
   APPLICANT: Kristipati, Ramasharma
   TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING
   TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN
   NUMBER OF SEQUENCES: 36
   CORRESPONDENCE ADDRESS:
      ADDRESSEE: Dehlinger & Associates
      STREET: 350 Cambridge Avenue, Suite 250
      CITY: Palo Alto
      STATE: CA
      COUNTRY: US
      ZIP: 94306-1546
   COMPUTER READABLE FORM:
      MEDIUM TYPE: Diskette
      COMPUTER: IBM Compatible
      OPERATING SYSTEM: DOS
      SOFTWARE: FastSEQ for Windows Version 2.0
   CURRENT APPLICATION DATA:
      APPLICATION NUMBER: US/08/965,918
      FILING DATE: 07-NOV-1997
      CLASSIFICATION: 514
   ATTORNEY/AGENT INFORMATION:
      NAME: Mohr, Judy M.
      REGISTRATION NUMBER: 38,563
      REFERENCE/DOCKET NUMBER: 5865-0009.34
   TELECOMMUNICATION INFORMATION:
      TELEPHONE: 650-324-0880
      TELEFAX: 650-324-0960
INFORMATION FOR SEQ ID NO: 12:
   SEQUENCE CHARACTERISTICS:
      LENGTH: 25 amino acids
      TYPE: amino acid
      TOPOLOGY: linear
   MOLECULE TYPE: protein
   HYPOTHETICAL: NO
   ORIGINAL SOURCE:
      INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
   FEATURE:
      NAME/KEY: Modified-site
      LOCATION: 12
      OTHER INFORMATION: /note= "where X is Nle"
US-08-965-918-12

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       ||| | | ||: :||||||||||||
Db   1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

Query Match   80.4%; Score 123; DB 2; Length 25;
Best Local Similarity 76.0%; Pred. No. 6e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

US-08-965-918-12

RESULT 9
US-09-138-439-12
Sequence 12, Application US/09138439

Patent No. 594305
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/138,439
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 1993-04-15
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 12:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 12
; OTHER INFORMATION: /note= "where X is Nle"
US-09-138-439-12

Query Match   80.4%;   Score 123; DB 2;   Length 25;
Best Local Similarity 76.0%;   Pred. No. 6e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        |||| | | ||| :|:||||||||||||
Db   1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

RESULT 10
US-08-613-400A-12
; Sequence 12, Application US/0861340OA
; Patent No. 605429
; GENERAL INFORMATION:
; APPLICANT: Bowersox, S. Scott
; APPLICANT: Gadbois, Theresa
; APPLICANT: Pettus, Mark, R.
; APPLICANT: Luther, Robert, R.
; TITLE OF INVENTION: IMPROVED EPIDURAL
; TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA

; NUMBER OF SEQUENCES: 36
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dehlinger & Associates
; STREET: 350 Cambridge Avenue, Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: US
; ZIP: 94306-1546
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSEQ for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/613,400A
; FILING DATE: 08-MAR-1996
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0019
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650-324-0880
; TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 12:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 12
; OTHER INFORMATION: /note= "where X is Nle"
US-08-613-400A-12

Query Match   80.4%;   Score 123; DB 3;   Length 25;
Best Local Similarity 76.0%;   Pred. No. 6e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
        |||| | | ||| :|:||||||||||||
Db   1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

RESULT 11
US-09-298-017-12
; Sequence 12, Application US/09298017
; Patent No. 6087091
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk

RESULT 12
US-09-392-979A-12
Sequence 12, Application US/0932979A
Patent No. 6136786
GENERAL INFORMATION:
  APPLICANT: JUSTICE, ALAN
  APPLICANT: SINGH, TEJINDER
  APPLICANT: GOHIL, KISHOR C
  APPLICANT: VALENTINO, KAREN L
  APPLICANT: MILJANICH, GEORGE P
  TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
  TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
  NUMBER OF SEQUENCES: 34
  CORRESPONDENCE ADDRESS:
  ADDRESSEE: Law Offices of Peter Dehlinger
  STREET: 350 Cambridge Avenue, Suite 300
  CITY: Palo Alto
  STATE: CA
  COUNTRY: USA
  ZIP: 94306
  COMPUTER READABLE FORM:
  MEDIUM TYPE: Floppy disk
  COMPUTER: IBM PC compatible
  OPERATING SYSTEM: PC-DOS/MS-DOS
  SOFTWARE: Patentin Release #1.0, Version #1.25
  CURRENT APPLICATION DATA:
  APPLICATION NUMBER: US/09/392,979A
  FILING DATE:
  PRIOR APPLICATION DATA:
  APPLICATION NUMBER: US/08/049,794
  FILING DATE: 1993-04-15

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/298,017
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/049,794
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Stratford, Carol A.
REGISTRATION NUMBER: 34,444
REFERENCE/DOCKET NUMBER: 5865-0009.30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 324-0880
TELEFAX: (415) 324-0960
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 25 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: NO
ORIGINAL SOURCE:
INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
FEATURE:
NAME/KEY: Modified-site
LOCATION: 12
OTHER INFORMATION: /note= "where X is Nle"
US-09-298-017-12

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       |||| |||: |:|||||||||||||
Db 1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

Query Match   80.4%; Score 123; DB 3; Length 25;
Best Local Similarity 76.0%; Pred. No. 6e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

APPLICATION NUMBER: US 07/814,759
FILING DATE: 30-DEC-1991
ATTORNEY/AGENT INFORMATION:
NAME: Stratford, Carol A.
REGISTRATION NUMBER: 34,444
REFERENCE/DOCKET NUMBER: 5865-0009.30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 324-0880
TELEFAX: (415) 324-0960
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 25 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: NO
ORIGINAL SOURCE:
INDIVIDUAL ISOLATE: SNX-194, FIGURE 2
FEATURE:
NAME/KEY: Modified-site
LOCATION: 12
OTHER INFORMATION: /note= "where X is Nle"
US-09-392-979A-12

Qy 1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
       |||| |||: |:|||||||||||||
Db 1 CKGAGAKCSRLXYDCCTGSCRSGKC 25

Query Match   80.4%; Score 123; DB 4; Length 25;
Best Local Similarity 76.0%; Pred. No. 6e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

RESULT 13
US-07-789-913-9
Sequence 9, Application US/0778913
Patent No. 5559095
GENERAL INFORMATION:
  APPLICANT: Miljanich, George P.
  APPLICANT: Bowersox, Stephen S.
  APPLICANT: Fox, James A.
  APPLICANT: Valentino, Karen L.
  APPLICANT: Bitner, Robert S.
  APPLICANT: Yamashiro, Donald H.
  TITLE OF INVENTION: Delayed Treatment Method of Reducing
  TITLE OF INVENTION: Ischemia-Related Neuronal Damage
  NUMBER OF SEQUENCES: 28
  CORRESPONDENCE ADDRESS:
  ADDRESSEE: Law Offices of Peter Dehlinger
  STREET: 350 Cambridge Avenue, Suite 300
  CITY: Palo Alto
  STATE: CA
  COUNTRY: USA
  ZIP: 94306
  COMPUTER READABLE FORM:
  MEDIUM TYPE: Floppy disk
  COMPUTER: IBM PC compatible
  OPERATING SYSTEM: PC-DOS/MS-DOS
  SOFTWARE: Patentin Release #1.0, Version #1.25
  CURRENT APPLICATION DATA:
  APPLICATION NUMBER: US/07/789,913
  FILING DATE: 19911112
  CLASSIFICATION: 514
  PRIOR APPLICATION DATA:
  APPLICATION NUMBER: US 07/561,766
  FILING DATE: 02-AUG-1990
  PRIOR APPLICATION DATA:
  APPLICATION NUMBER: US 07/440,094
  FILING DATE: 22-NOV-1989
  ATTORNEY/AGENT INFORMATION:
  NAME: Stratford, Carol A.
  REGISTRATION NUMBER: 34,444
  REFERENCE/DOCKET NUMBER: 5865-0005.30

RESULT 14
US-07-789-913-12
; Sequence 12, Application US/0789913
; Patent No. 5559095
; GENERAL INFORMATION:
; APPLICANT: Miljanich, George P.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Fox, James A.
; APPLICANT: Valentino, Karen L.
; APPLICANT: Bitner, Robert S.
; APPLICANT: Yamashiro, Donald H.
; TITLE OF INVENTION: Delayed Treatment Method of Reducing
; TITLE OF INVENTION: Ischemia-Related Neuronal Damage
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/789,913
; FILING DATE: 19911112
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/440,094
; FILING DATE: 22-NOV-1989
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0005.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 12:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: both
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-190
US-07-789-913-9

Query Match   79.7%;   Score 122;   DB 1;   Length 25;
Best Local Similarity   76.0%;   Pred. No. 7.7e-07;
Matches   19;   Conservative   2;   Mismatches   4;   Indels   0;   Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
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Db   1 CKGAGAKCSRLMYDCCTGSCRSGKC 25

RESULT 15
US-08-049-794-9
; Sequence 9, Application US/08049794
; Patent No. 5587454
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 19930415
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 9:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-190, FIGURE 2
US-08-049-794-9

Query Match   79.7%;   Score 122;   DB 1;   Length 25;
Best Local Similarity   76.0%;   Pred. No. 7.7e-07;
Matches   19;   Conservative   2;   Mismatches   4;   Indels   0;   Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
      ||| | ||| : :|||||||||||
Db   1 CKGKGAKCSRLXYDCCTGSCRSGKC 25

; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 12.13
; OTHER INFORMATION: /note= "where Xaa is No. 5559095leucine"
US-07-789-913-12

Query Match   79.7%;   Score 122;   DB 1;   Length 25;
Best Local Similarity   76.0%;   Pred. No. 7.7e-07;
Matches   19;   Conservative   2;   Mismatches   4;   Indels   0;   Gaps   0;

Qy   1 CKGTGKPCSRIAYNCCTGSCRSGKC 25
      ||| | ||| : :|||||||||||
Db   1 CKGKGAKCSRLXYDCCTGSCRSGKC 25

; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-194

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Qy     1  CKGTGKPCSRIAYNCCTGSCRSGKC  25
          ||| | |||: |:||||||||||||
Db     1  CKGAGAKCSRLMYDCCTGSCRSGKC  25
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Search completed: May 20, 2003, 15:42:42
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